Ontario

2006 Status of Major Stocks

Lake Erie Management Unit

March 2007

The Lake Erie Management Unit of the Ontario Ministry of Natural Resources is responsible for managing the fishery resources of the Ontario waters of Lake Erie, as well as the upper Niagara River, the Detroit River, Lake St. Clair, and the St. Clair River.

Ontario has been responsible for managing the fishery resources of these waters since 1898. In 1992, the Lake Erie Management Unit was created to improve Ontario's ability to manage these important resources. The Unit is based in London with field offices in Port Dover and Wheatley.

VISION: The Lake Erie Management Unit will contribute to the environmental, social, and economic well-being of the people of Ontario through the sustainable development of fishery resources within the Lake Erie basin.

MISSION: To ensure the long-term health of the Lake Erie ecosystem and to promote the sustainable harvest and development of its fishery resource through sound science, assessment, regulation, and advocacy.

GOAL: To foster and encourage the understanding of all users and partners on the complexity of managing the fishery resource of Lake Erie, to minimize conflict, and to endorse sound fishery management practices.

Lake Erie's fishery resources are managed cooperatively by Ontario and the four U.S. states - New York, Pennsylvania, Ohio and Michigan - bordering the lake through a process set out by the Great Lakes Fishery Commission and the Joint Strategic Plan for Management of Great Lakes Fisheries. Lake St. Clair's fishery resources are managed cooperatively by Ontario and Michigan under the same process.

Cover Photos: (top to bottom) -

- Andy Cook and Beth Wright measure the small fish caught in a young-of-year trawl in the western basin in mid-August;
- Stan Powell inserts electronic PIT tags under the belly skin of a walleye caught near Pelee Island in March while Aida Baptista records the data;
- The catch from a young-of-year trawl in the western basin;
- Steven Evans checks a commercial fisher's daily catch report at the Kingsville dock.

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FORWARD

The Lake Erie Management Unit (LEMU) forms part of the Great Lakes Branch of the Ontario Ministry of Natural Resources. The mission of the Unit is to provide leadership and direction on sustainable resource management for Lake Erie, by maintaining and, where possible enhancing the social, economic, cultural and environmental benefits of the lake's rich aquatic resources. The LEMU works to achieve this through its annual fisheries assessment, enforcement and management activities on the Canadian waters of Lake Erie, Lake St. Clair and connecting waters. Presently the LEMU maintains facilities in Wheatley, Port Dover, and London. The Unit also provides a coordination function for commercial fish management across the province of Ontario from the London office.

The Province of Ontario and four U.S. States share the responsibility of managing Lake Erie's fishery resource. Since fish populations do not recognize borders, international cooperation is essential to the sustainable management of Lake Erie's fisheries. This cooperation is achieved via the Lake Erie Committee (LEC), which is comprised of representatives from state and provincial fisheries management agencies under the auspices of the Great Lakes Fishery Commission (GLFC). On a rotational basis, Ontario's Lake Erie Manager either chairs or vice-chairs this committee. Lake Erie Management Unit staff makes a key contribution to all of the LEC Task Groups, which jointly pursue scientific objectives, evaluate international fisheries management strategies, and sets harvest levels for the lake.

The Lake Erie Management Unit consults regularly with resource management partners, namely the sport and commercial fish interests on Lake Erie and Lake St. Clair. The principal venue for this consultation process is the Lake Erie Program Committee. Within this group, representatives from the sport and commercial bait and food fisheries discuss emergent and long-term fisheries issues, with the Lake Erie Manager acting as chair and facilitator. In addition, the LEMU is committed to continuing its angler consultation programs as a means of continuing broad partnerships with the fisheries resource users of Lake Erie and Lake St. Clair.

The purpose of the LEMU Status of Stocks report is to summarize and present fisheries assessment, and commercial fishery data that is directly pertinent to the allocation process for lake whitefish, walleye, yellow perch, and rainbow smelt in Lake Erie. This data is incorporated with similar information from the U.S. jurisdictions and analyses are performed by various task groups to determine population status, and appropriate harvest levels.

We are pleased to present this report with our stakeholders and colleagues, and welcome any questions or comments you may have on its content.

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1. STATUS OF MAJOR SPECIES

The following is an overview of the status of major species in Ontario waters of Lake Erie for 2006. Lake-wide perspectives are available in the following reports of the Lake Erie Committee (LEC) of the Great Lakes Fishery Commission:

Walleye Task Group Report
Yellow Perch Task Group Report
Forage Task Group Report
Cold Water Task Group Report
Habitat Task Group

Walleye

In 2006, commercial catch rates for walleye increased from those observed in 2005. This is the sixth consecutive year of increasing catch rates. These increases are a result of high survival rates and the strong 1999, 2001, and 2003 year classes supporting the fishery. In 2003, the young of the year index (YOY) in the west basin yielded the largest showing of young walleye for the recent time series. This year class represented 89% of the 2006 fishery, and will continue to be a dominant year class in 2007. This is fortunate, as interagency YOY trawling in August of 2004, 2005, and 2006 revealed below average catch rates, and expectations for these year classes recruiting to the fishery in 2007 and 2008 are low at best.

In 2006, the LEC and the Lake Erie Management Unit used the Walleye Management Plan (WMP) to set harvest levels for Lake Erie. Within this plan framework, there is an exploitation policy setting framework that was used in 2005, and will continue to be used through 2007 and beyond. In conjunction with decision analysis techniques finalized in 2005 and ongoing population model refinements, this policy will help to support fisheries management on Lake Erie and promote quality and sustainability of the sport and commercial fisheries well into the future.

The walleye population in eastern Lake Erie consists of mixed stocks including those originating from east basin shoals, the Grand River, and immigrants from the rest of the lake. Representation of walleye ages 4 and older is typically greater in eastern Lake Erie compared to other regions of the lake. The greater average age of walleye in the eastern basin is due in part to the contribution of older migratory individuals originating from the western basin. However, in 2006, the strong 2003 year class was evident in great numbers in both the fishery and in survey gear. Management options specifically designed to enhance sustainability for East Basin percid fisheries underwent public consultation in early 2005 and were used in 2005 and 2006.

Yellow Perch

Yellow perch populations in Lake Erie have undergone large-scale fluctuations in recruitment and survival over the last several decades. High harvest levels during the 1980's could not be sustained through the early 1990's due to low recruitment and low survival rates. Increased recruitment during the mid-1990's peaked with the exceptionally strong 1996-year class. The 2001 yellow perch year class was considered above average, it contributed significantly to the commercial fishery from 2003 to 2006. Similar to the strong year class seen for walleye, the 2003 YOY trawl index for yellow perch was one of the highest on record. In 2005, this year class began to recruit to the commercial fishery, which translated into continued high catch rates and substantial allocations. This year class continued to support a large and healthy yellow perch fishery in 2006. The 2003 year class will continue to make a major contribution lake-wide through 2007 into 2008. In contrast, the 2006 yellow perch YOY index revealed lower than average catch rates, which will have an impact on population abundance when this year class is two years old and recruits in relatively low numbers to the fisheries lake wide.

Lake Whitefish

In 2006, 322,418 pounds of lake whitefish were harvested in Lake Erie by Ontario. This represents 34% of the quota. The majority of the lake whitefish harvest took place in quota area 1 (57%), with a lesser amount in quota area 2 (32%). The age composition of the harvest was broad, represented by ages 3 to 16, with the majority of fish from the 2003 year class (age 3).

While fishery trends help to describe the status of whitefish stocks, estimating recruitment of younger fish remains a challenge. Due to the migratory and schooling behavior of this species, whitefish assessment in Lake Erie is complex and problematic. In 2006 partnership index catch rates of whitefish decreased in central basin indices but increased significantly in the east basin. The majority of whitefish caught during this survey were from the 2001 and 2003 year classes. These year classes appear promising to the fishery in the future, with the 2001 year class already present in commercial catches. However, although the strong 2001 and 2003 year classes were dominant in the fishery in 2006, they did not substantially impact on catch rates or harvest.

2. COMMERCIAL FISHERY

In 2006, total commercial landing from the Ontario waters of Lake Erie was 22.8 million pounds, a decrease of 2.2 million pounds (9%) from 2005 (Table 2.1). The value of the total commercial landings in 2006 was $30.8 million, an increase of $0.5 million (2%) from 2005 (Table 2.1).

Rainbow Smelt

The total landings of rainbow smelt significantly decreased 73% to 1.8 million pounds in 2006 (Tables 2.2, 2.3, Figure 2.3). The harvest was primarily from OE-4 (91%), 1.7 million pounds. Age 3 smelt dominated harvest in OE-4 from 66% in winter to 50% in the fall. Age 2 also contributed significantly to the harvest ranging from 25% in the winter to 31% in the summer (Table 2.4). The commercial fishery harvested 12% of the quota allocated for 2006. These harvest levels are at their lowest since before 1980. The landed value of rainbow smelt was $0.4 million, a decrease of $1.2 million (74%) from 2005 (Table 2.2, 2.3).

Yellow Perch

Yellow perch landings increased 32% to 8.1 million pounds in 2006 (Tables 2.2, 2.3, Figure 2.3). The commercial fishery harvested almost 100% of allocated quota in 2006. The landed value of yellow perch increased $3 million (23%), from 2005 to $15.9 million in 2006 (Tables 2.2, 2.3). In OE-1 and OE-2 age 3 and age 5 combined represented more than 86% of the harvest in winter and spring. In the summer and fall harvest age 3 comprised over 80% of the harvest. In OE-3 and OE-4 age's 3, 4 and 5 were the main contributors having combined harvest of 78 to 94%. In OE-5 age 3 was the major contributor in the harvest with over 59% of the harvest (Table 2.5).

Walleye

Walleye landings increased 25% to 8 million pounds (Tables 2.2, 2.3, Figure 2.3). Ninety-nine percent of the 2006 quota was harvested. Lake-wide harvest by walleye size category was: Number 1 84%, Jumbo 11%, White Gills of Number 1 and Jumbo 5%, and Number 2 0.3%. Number 1 walleye comprised the majority of the harvest in OE-1 (88%), OE-2 (89%) and OE-3 (74%) and significantly in OE-4 (35%) and OE-5 (33%). Jumbo's were prominent in OE-3 (23%) harvest and comprised the majority of harvest in OE-4 (64%) and OE-5 (65%). Within the Number 1 category the 2003 year class, age 3, comprised over 90% of the harvest throughout the year in OE-1 and OE-2 and over 65% in OE-3 to OE-5 harvest. Jumbo harvest was comprised of age 3 and older walleye (Table 2.6). The landed value of walleye decreased 4% from 2005 to $11.6 million (Tables 2.2, 2.3).

White Bass

The total landings of white bass decreased 0.4 million pounds (16%) to 2.2 million pounds in 2006 (Tables 2.2, 2.3, Figure 2.3). Virtually all harvest was from OE-1 (47%), OE-2 (34%) and OE-3 (19%). Spring harvest was primarily age 3 in OE-1 (72%) and OE-3 (93%). A broad range of ages, 1 to 7 were harvested in 2006 (Table 2.7). White bass have not been regulated by quota since 1993. The landed value of white bass decreased $0.6 million (26%) to $1.7 million in 2006 (Tables 2.2, 2.3).

White Perch

The total landings of white perch decreased 0.2 million pounds (7%) to 2.2 million pounds in 2006 (Tables 2.2, 2.3, Figure 2.3). The majority of harvest occurred in statistical districts OE-1 (28%), OE-2 (46%) and OE-3 (25%). Fall harvest from OE-1 and OE-2 was from a range of age groups, 2 to 7, with age 3 being greater than 46% of the harvest (Table 2.8). White perch are not regulated by quota. The total landed value of white perch decreased $0.1 million (14%) to $0.8 million in 2006 (Tables 2.2, 2.3).

Lake Whitefish

The total landing of lake whitefish increased marginally 758 pounds to 322,418 pounds in 2006. The commercial fishery harvested 33% of the quota allocated for 2006. Harvest was predominantly from OE-1 (57%) and OE-2 (32%). The fall harvest from OE-1 was primarily age 3, 2003 year class (52%) with age 5 being next abundant (27%) (Table 2.9). The landed value of lake whitefish decreased $79,000 (23%) to $0.3 million in 2006 (Tables 2.2, 2.3).

Table 2.1 Total annual commercial fishery landings (pounds) and value ($ CDN) from the Canadian waters of Lake Erie, 1960-2006.

Year	Total Pounds	Total Value	Year	Total Pounds	Total Value
1960	28,181,000	2,033,000	1984	36,305,219	26,349,853
1961	36,350,000	2,516,000	1985	43,367,069	20,255,403
1962	43,296,419	2,296,635	1986	39,112,618	34,961,819
1963	34,069,000	2,523,635	1987	47,542,123	36,458,014
1964	25,391,428	2,377,284	1988	45,333,210	42,069,940
1965	35,096,120	3,319,307	1989	42,225,415	36,642,716
1966	41,435,283	3,104,813	1990	42,533,681	31,191,417
1967	37,775,009	3,339,460	1991	42,447,098	28,198,998
1968	39,415,250	2,973,814	1992	32,814,073	28,888,799
1969	48,025,996	4,244,149	1993	35,524,282	27,545,957
1970	31,755,446	3,770,281	1994	28,306,102	29,957,675
1971	29,075,559	4,254,692	1995	27,788,500	32,158,827
1972	29,978,000	5,324,000	1996	27,566,700	31,406,644
1973	39,829,000	7,038,000	1997	32,912,134	33,640,390
1974	38,686,000	5,634,000	1998	34,731,109	38,144,985
1975	30,548,620	6,009,093	1999	30,540,383	34,114,272
1976	25,729,080	6,000,970	2000	22,871,377	30,872,107
1977	35,853,556	7,736,701	2001	22,096,515	26,612,420
1978	40,159,610	9,883,626	2002	25,237,063	30,349,232
1979	40,839,668	17,555,598	2003	21,702,507	25,414,340
1980	42,849,000	14,207,000	2004	27,106,068	23,688,955
1981	44,711,277	20,279,830	2005	25,065,670	30,237,098
1982	59,500,000	26,183,000	2006	22,847,529	30,750,957
1983	45,682,046	17,613,206			

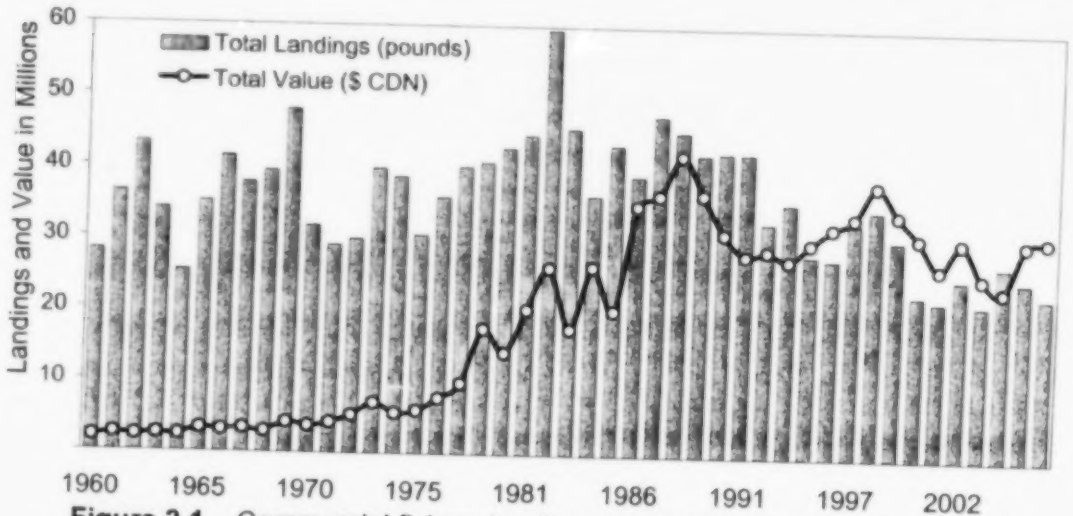

Figure 2.1 Commercial fishery landings (pounds) and value ($ CDN) from the Canadian waters of Lake Erie, 1960-2006.

Table 2.2 Total annual commercial fishery landings (landed weight in pounds) and value dollars by fish species and statistical district for the Canadian waters of Lake Erie, 2006.

Species	Landings by Statistical District					Total Landing	Total Value
	OE-1	OE-2	OE-3	OE-4[a]	OE-5		
Brown bullhead	75	539				614	148
Burbot	15	343	37	1,023	923	2,341	238
Carp	4,204	8,369	172	75	45	12,865	1,869
Catfish	4,998	8,577	1,141	141	933	15,790	4,752
Freshwater drum	57,212	43,582	16,326	240	100	117,460	16,707
Gizzard shad	6,095	361		1	0	6,457	613
Lake whitefish	183,272	104,469	14,484	7,976	12,217	322,418	258,412
Rainbow smelt		102,215	7,761	1,684,212	52,967	1,847,155	410,816
Rock bass	29	9		15		53	25
Suckers	55,278	3,635	77	110	0	59,100	23,613
Walleye	4,595,060	1,730,595	1,416,529	123,577	109,690	7,975,451	11,602,729
White bass	1,010,222	732,574	406,656	6,719	994	2,157,165	1,683,194
White perch	619,033	1,011,736	543,263	13,657	2,370	2,190,059	798,150
Yellow perch	1,330,485	3,102,213	3,240,157	311,144	132,228	8,116,227	15,947,044
Mixed[b]	11,620	12,652	2	100	0	24,374	2,647
Total Landing (lbs)	7,877,598	6,861,869	5,646,605	2,148,990	312,467	22,847,529	
Total Value ($)	10,378,183	9,876,577	8,887,703	1,168,936	439,558		30,750,957

[a] Excludes Inner Long Point Bay.

[b] A variety of incidentally caught species of little or no value, plus species with total landings less than 50 pounds.

Preliminary February 20, 2007

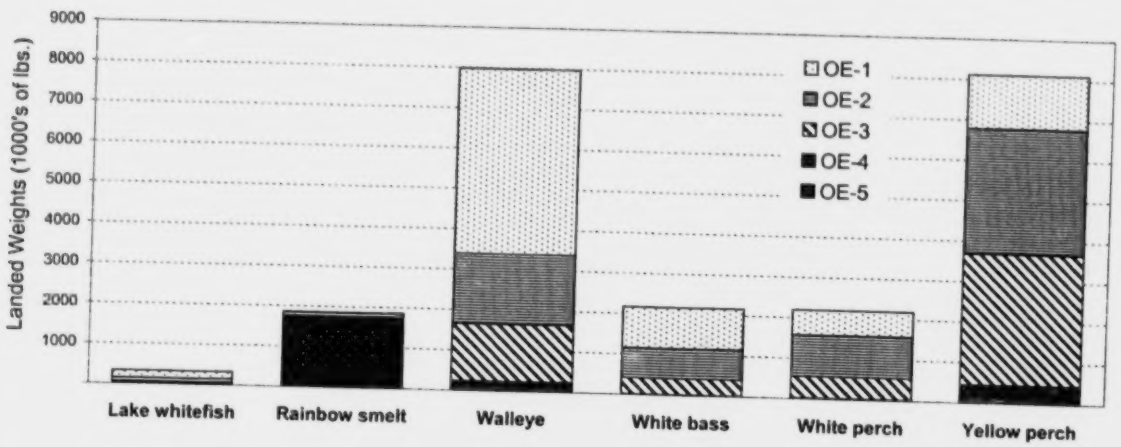

Figure 2.2 Total annual commercial fishery landed weights (1000's of lbs.) for principle species by statistical district, Lake Erie 2006.

Table 2.3 Change in weight of the annual commercial fishery landed weight (pounds) from 2005 to 2006 by the fish species and statistical district for the Canadian waters of Lake Erie.

Species	Landings by Statistical District					Total Landing	Total Value
	OE-1	OE-2	OE-3	OE-4[a]	OE-5		
Brown bullhead	-529	524	0	0	-1	-6	10
Burbot	15	-420	19	-6,867	-402	-7,655	-579
Carp	-2,938	6,889	167	75	5	4,198	900
Catfish	1,112	4,199	-76	-8	835	6,062	1,582
Freshwater drum	36,700	-49,453	-4,626	-385	-716	-18,480	2,318
Gizzard shad	-62,144	240	0	1	0	-61,903	-5,771
Lake whitefish	113,806	-120,070	7,040	4,883	-4,901	758	-78,735
Rainbow smelt	0	-2,917,128	-1,806,072	-348,280	38,115	-5,033,365	-1,170,915
Rock bass	-195	1	0	15	0	-179	-86
Suckers	-22,798	1,911	48	110	0	-20,729	-13,030
Walleye	940,908	367,031	79,060	108,767	77,043	1,572,809	-484,897
White bass	-220,350	-472,082	269,794	1,900	771	-419,967	-605,583
White perch	-49,312	-307,464	188,379	10,298	1,598	-156,501	-131,381
Yellow perch	-188,725	430,847	1,517,455	175,552	17,957	1,953,086	3,003,385
Mixed[b]	-13,788	-21,967	2	-516	0	-36,269	-3,359
Total Landing (lbs.)	531,762	-3,076,942	251,190	-54,455	130,304	-2,218,141	
Total Value ($)	-1,292,726	-807,517	2,122,724	391,349	100,028		513,859

[a] Excludes Inner Long Point Bay
[b] A variety of incidentally caught species of little or no value, plus species with total landings less than 50 pounds.

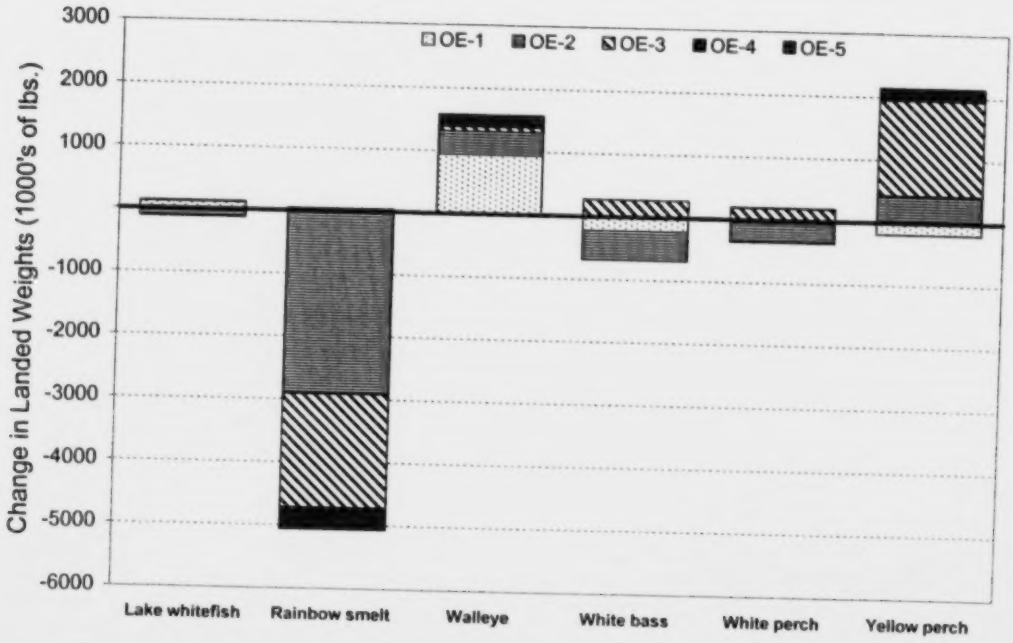

Figure 2.3 Change in weight of the annual commercial fishery landings (1000's of lbs.) from 2005 to 2006

Table 2.4 *Rainbow smelt* year-class composition, average total length (mm) and weight (g) from Lake Erie commercial catch samples taken from trawl nets by statistical district and season, 2006. n is sample size, sexes combined.

Stat. Dist.	Season*	Year-Class and Age										All Ages	
		2006	2005	2004	2003	2002	2001	2000	1999	1998	1997		
		0	1	2	3	4	5	6	7	8	9	Average	n
Age Group Composition (%) **													
OE-4	Winter	-	-	25	66	9	-	-	-	-	-	2.8	92
	Spring	-	0	25	65	9	1	0	-	-	-	2.9	543
	Summer	-	5	31	55	9	0	1	-	-	-	2.7	514
	Fall	4	4	28	50	10	3	1	-	-	-	2.7	114
Mean Total Length (mm)													
OE-4	Winter	-	-	120	129	147	-	-	-	-	-	126.0	172
	Spring	-	106	122	131	156	181	180	-	-	-	127.9	985
	Summer	-	118	138	143	164	198	241	-	-	-	137.4	1057
	Fall	82	119	159	165	173	198	235	-	-	-	148.6	204
Mean Round Weight (g)													
OE-4	Winter	-	-	9	12	20	-	-	-	-	-	11.7	92
	Spring	-	5	9	12	25	40	42	-	-	-	12.7	545
	Summer	-	10	16	18	28	48	85	-	-	-	17.6	617
	Fall	3	12	25	30	35	49	81	-	-	-	26.4	124

* Winter = January - March Spring = April - June Summer = July - September Fall = October - December

** A hyphen (-) indicates no fish of that age, a zero (0) indicates less than 0.5% fish of that age

Table 2.5 Yellow perch year-class composition, average total length (mm) and weight (g) from Lake Erie commercial catch samples from small mesh (<76mm) gill nets by statistical district and season, 2006. n is sample size, sexes combined.

Stat. Dist.	Season*	Year-Class and Age										All Ages	
		2005	2004	2003	2002	2001	2000	1999	1998	1997	1996		
		1	2	3	4	5	6	7	8	9	10+	Average	n
Age Group Composition (%) **													
OE-1	Spring	-	0	39	2	47	1	6	5	-	1	4.5	398
	Summer	-	1	80	2	12	1	3	1	-	0	3.5	440
	Fall	-	-	86	-	8	1	4	0	1	-	3.4	238
OE-2	Winter	-	-	66	4	27	1	-	3	-	-	3.7	79
	Spring	-	-	50	4	39	1	4	2	-	1	4.2	518
	Summer	-	2	87	1	9	1	0	0	-	-	3.2	1075
	Fall	-	-	95	1	3	-	0	0	-	-	3.1	477
OE-3	Spring	-	0	32	10	41	4	6	5	1	1	4.6	514
	Summer	-	1	75	3	16	1	2	1	-	0	3.5	594
	Fall	-	2	52	22	14	8	1	1	-	1	3.8	437
OE-4	Spring	-	2	28	26	29	3	5	6	1	-	4.5	233
	Summer	-	1	46	24	24	3	2	1	-	-	3.9	120
	Fall	-	13	58	19	1	8	1	-	-	-	3.4	79
OE-5	Spring	-	12	77	3	4	-	2	3	-	-	3.2	120
	Summer	-	9	59	14	12	2	3	1	-	-	3.5	160
Mean Total Length (mm)													
OE-1	Spring	-	197	203	222	226	220	225	218	-	222	216.2	398
	Summer	-	192	214	219	226	207	221	232	-	204	215.4	440
	Fall	-	-	222	-	234	226	223	298	225	-	223.2	238
OE-2	Winter	-	-	199	207	227	246	-	232	-	-	207.9	79
	Spring	-	-	201	215	227	219	265	254	-	247	215.7	518
	Summer	-	190	204	201	226	221	249	219	-	-	205.9	1075
	Fall	-	-	215	224	237	-	288	260	-	-	215.7	477
OE-3	Spring	-	181	199	229	233	258	270	275	263	278	227.1	514
	Summer	-	202	206	226	238	257	279	277	-	266	214.5	594
	Fall	-	213	217	220	230	233	238	255	-	297	221.1	437
OE-4	Spring	-	227	225	234	238	255	241	279	300	-	236.9	233
	Summer	-	226	220	231	224	211	238	238	-	-	223.7	120
	Fall	-	229	233	237	211	226	252	-	-	-	232.7	79
OE-5	Spring	-	218	231	265	263	-	300	338	-	-	235.9	120
	Summer	-	221	231	240	256	238	268	261	-	-	235.9	160

... Continued ...

Table 2.5 continued...

Stat. Dist.	Season*	Year-Class and Age										All Ages	
		2005	2004	2003	2002	2001	2000	1999	1998	1997	1996		
		1	2	3	4	5	6	7	8	9	10+	Average	n
							Mean Round Weight (g)						
OE-1	Spring	-	88	111	140	137	128	147	128	-	127	127	398
	Summer	-	95	123	138	151	111	134	167	-	101	127	440
	Fall	-	-	136	-	174	143	140	412	151	-	141	238
OE-2	Winter	-	-	98	115	156	195	-	178	-	-	117.5	79
	Spring	-	-	105	130	157	121	304	237	-	180	137.0	518
	Summer	-	95	115	110	162	140	221	146	-	-	119.3	1075
	Fall	-	-	128	141	188	-	350	242	-	-	131.6	477
OE-3	Spring	-	84	103	162	166	245	280	294	219	289	162.6	514
	Summer	-	110	118	160	190	264	329	323	-	227	139.8	594
	Fall	-	127	133	136	168	170	173	254	-	460	143.8	437
OE-4	Spring	-	166	151	174	170	200	173	285	355	-	175.6	233
	Summer	-	152	144	169	156	121	170	180	-	-	153.0	120
	Fall	-	165	171	187	130	148	205	-	-	-	171.7	79
OE-5	Spring	-	147	173	277	270	-	386	528	-	-	189.5	120
	Summer	-	150	166	180	227	166	242	241	-	-	176.5	160

* Season: Winter = January-March Spring = April-June Summer = July-September Fall = October-December

** A hyphen (-) indicates no fish of that age, a zero (0) indicates less than 0.5% fish of that age

Table 2.6 Walleye year-class composition, average total length (mm) and weight (g) from Lake Erie commercial catch samples from large mesh (>76mm) gill nets by statistical district and season, 2006. n is sample size, sexes combined.

Stat. Dist.	Season*	Category**	Year-Class and Age										All Ages	
			2005	2004	2003	2002	2001	2000	1999	1998	1997	1996		
			1	2	3	4	5	6	7	8	9	10+	Average	n
Age Group Composition (%)* **														
OE-1	Winter	Number1	-	-	100	-	-	-	-	-	-	-	3.0	60
	Spring	Number1	-	-	92	-	6	0	2	-	-	-	3.2	573
	Spring	Jumbo	-	-	6	-	56	1	20	6	3	7	6.1	96
	Spring	Whitegill	-	-	93	-	8	-	-	-	-	-	3.2	40
	Summer	Number1	-	3	94	-	3	-	1	-	-	-	3.1	79
	Summer	Jumbo	-	-	-	-	20	5	30	-	15	30	8.2	20
	Summer	Whitegill	-	3	85	-	5	-	5	-	-	3	3.5	40
	Fall	Number1	-	0	96	-	3	-	0	-	-	-	3.1	279
	Fall	Jumbo	-	-	40	-	25	3	13	5	3	13	5.5	40
	Fall	Whitegill	-	-	94	-	3	-	-	-	3	1	3.3	80
OE-2	Winter	Number1	-	3	90	-	5	-	3	-	-	-	3.2	40
	Spring	Number1	-	2	96	1	2	-	1	-	-	-	3.0	197
	Summer	Number1	-	-	90	-	2	-	4	2	-	2	3.5	99
	Fall	Number1	-	-	100	-	-	-	-	-	-	-	3.0	60
	Fall	Jumbo	-	-	75	-	20	-	5	-	-	-	3.6	20
	Fall	Whitegill	-	-	100	-	-	-	-	-	-	-	3.0	20
OE-3	Spring	Number1	-	1	96	-	1	-	1	-	-	-	3.1	80
	Summer	Number1	-	-	70	5	17	-	6	3	-	-	3.8	79
	Fall	Number1	-	-	97	2	2	-	-	-	-	-	3.1	60
	Fall	Jumbo	-	-	65	-	10	-	15	5	-	5	4.5	20
	Fall	Whitegill	-	-	100	-	-	-	-	-	-	-	3.0	20
OE-4	Summer	Number1	-	-	65	-	10	-	20	-	-	5	4.4	20
	Summer	Jumbo	-	-	10	10	20	20	20	-	-	20	6.3	10
OE-5	Spring	Jumbo	-	-	5	35	15	30	15	-	-	-	5.2	20
	Summer	Number1	-	-	70	-	20	-	-	-	-	10	4.9	20
Mean Total Length (mm)														
OE-1	Winter	Number1	-	-	427	-	-	-	-	-	-	-	426.7	60
	Spring	Number1	-	-	443	-	497	545	543	-	-	-	448.2	573
	Spring	Jumbo	-	-	484	-	565	604	594	588	617	654	575.8	96
	Spring	Whitegill	-	-	445	-	472	-	-	-	-	-	446.8	40
	Summer	Number1	-	423	446	-	499	-	532	-	-	-	447.5	79
	Summer	Jumbo	-	-	-	-	561	653	559	-	573	607	580.5	20
	Summer	Whitegill	-	397	456	-	465	-	524	-	-	531	460.6	40
	Fall	Number1	-	416	473	-	506	-	561	-	-	-	473.7	279
	Fall	Jumbo	-	-	538	-	593	589	614	577	677	589	574.5	40
	Fall	Whitegill	-	-	469	-	556	-	-	-	555	577	475.0	80
OE-2	Winter	Number1	-	382	428	-	525	-	589	-	-	-	435.9	40
	Spring	Number1	-	364	446	490	515	-	540	-	-	-	446.7	197
	Summer	Number1	-	-	458	-	535	-	550	527	-	580	467.1	99
	Fall	Number1	-	-	477	-	-	-	-	-	-	-	476.5	60
	Fall	Jumbo	-	-	527	-	571	-	643	-	-	-	541.8	20
	Fall	Whitegill	-	-	484	-	-	-	-	-	-	-	484.0	20

... Continued ...

Table 2.6 continued...

Stat. Dist.	Season*	Category**	Year-Class and Age										All Ages	
			2005	2004	2003	2002	2001	2000	1999	1998	1997	1996		
			1	2	3	4	5	6	7	8	9	10+	Average	n
Mean Total Length (mm) continued...														
OE-3	Spring	Number1	-	340	449	-	514	-	507	-	-	-	449.0	80
	Summer	Number1	-	-	464	504	503	-	526	528	-	-	477.6	79
	Fall	Number1	-	-	484	464	450	-	-	-	-	-	483.3	60
	Fall	Jumbo	-	-	534	-	606	-	602	674	-	740	568.4	20
	Fall	Whitegill	-	-	487	-	-	-	-	-	-	-	487.4	20
OE-4	Summer	Number1	-	-	464	-	539	-	612	-	-	705	513.1	20
	Summer	Jumbo	-	-	465	492	574	574	581	-	-	589	559.2	10
OE-5	Spring	Jumbo	-	-	472	553	598	610	597	-	-	-	579.4	20
	Summer	Number1	-	-	472	-	535	-	-	-	-	624	499.9	20
Mean Round Weight (g)														
OE-1	Winter	Number1	-	-	822	-	-	-	-	-	-	-	822.3	60
	Spring	Number1	-	-	859	-	1142	1296	1442	-	-	-	889.4	573
	Spring	Jumbo	-	-	1198	-	1735	2053	2046	2057	2265	2725	1875.3	96
	Spring	Whitegill	-	-	820	-	942	-	-	-	-	-	828.7	40
	Summer	Number1	-	683	853	-	1101	-	1283	-	-	-	860.0	79
	Summer	Jumbo	-	-	-	-	1790	2721	1727	-	1898	2241	1969.1	20
	Summer	Whitegill	-	543	870	-	964	-	1502	-	-	1257	908.1	40
	Fall	Number1	-	671	1067	-	1368	-	1758	-	-	-	1077.4	279
	Fall	Jumbo	-	-	1631	-	2199	2079	2569	2116	3159	2181	2032.7	40
	Fall	Whitegill	-	-	1043	-	1941	-	-	-	1736	1586	1089.3	80
OE-2	Winter	Number1	-	587	838	-	1771	-	2469	-	-	-	919.2	40
	Spring	Number1	-	492	913	966	1261	-	1510	-	-	-	915.3	197
	Summer	Number1	-	-	903	-	1464	-	1603	1509	-	1788	972.3	99
	Fall	Number1	-	-	1092	-	-	-	-	-	-	-	1091.8	60
	Fall	Jumbo	-	-	1507	-	1976	-	2872	-	-	-	1668.8	20
	Fall	Whitegill	-	-	1132	-	-	-	-	-	-	-	1131.9	20
OE-3	Spring	Number1	-	383	1008	-	1316	-	1351	-	-	-	1008.2	80
	Summer	Number1	-	-	982	1208	1180	-	1441	1340	-	-	1063.8	79
	Fall	Number1	-	-	1120	1025	980	-	-	-	-	-	1115.5	60
	Fall	Jumbo	-	-	1530	-	2352	-	2451	3185	-	3736	1943.1	20
	Fall	Whitegill	-	-	1111	-	-	-	-	-	-	-	1110.5	20
OE-4	Summer	Number1	-	-	959	-	1579	-	2251	-	-	3349	1398.7	20
	Summer	Jumbo	-	-	978	1225	1786	1737	1948	-	-	1984	1710.5	10
OE-5	Spring	Jumbo	-	-	1087	1609	2082	2215	2139	-	-	-	1915.1	20
	Summer	Number1	-	-	1010	-	1488	-	-	-	-	2352	1239.9	20

* Season: Winter = January - March Spring = April - June Summer = July - September Fall = October - December

** Category: Number 1 (Category 1) = generally between 381 - 533 mm in total length
Jumbo (Category 2) = generally greater than 533 mm in total length
Number 2 (Category 3) = generally less than 381 mm in total length

*** A hyphen (-) indicates no fish of that age, a zero (0) indicates less than 0.5% fish of that age

Table 2.7 White bass year-class composition, average total length (mm) and weight (g) from Lake Erie commercial catch samples from large mesh (>76mm) gill nets for marketable fish by statistical district and season, 2006. n is sample size, sexes combined.

Stat. Dist.	Season*	Year-Class and Age										All Ages	
		2005	2004	2003	2002	2001	2000	1999	1998	1997	1996		
		1	2	3	4	5	6	7	8	9	10+	Average	n
Age Group Composition (%) **													
OE-1	Spring	-	2	72	18	3	3	2	-	-	-	3.4	60
	Fall	35	15	34	11	3	1	-	-	-	-	2.3	79
OE-2	Fall	5	10	55	30	-	-	-	-	-	-	3.1	40
OE-3	Spring	-	-	93	7	-	-	-	-	-	-	3.1	28
Mean Total Length (mm)													
OE-1	Spring	-	289	321	341	372	382	384	-	-	-	328.5	60
	Fall	277	300	325	342	377	394	-	-	-	-	308.7	80
OE-2	Fall	253	295	327	348	-	-	-	-	-	-	326.5	40
OE-3	Spring	-	-	314	333	-	-	-	-	-	-	315.4	28
Mean Round Weight (g)													
OE-1	Spring	-	-	-	-	-	-	-	-	-	-	-	-
	Fall	294	384	503	569	792	994	-	-	-	-	432.5	80
OE-2	Fall	223	367	515	605	-	-	-	-	-	-	512.6	40
OE-3	Spring	-	-	-	-	-	-	-	-	-	-	-	-

* Winter = January - March Spring = April - June Summer = July - September Fall = October - December

** A hyphen (-) indicates no fish of that age, a zero (0) indicates less than 0.5% fish of that age

Table 2.8 White perch year-class composition, average total length (mm) and weight (g) from Lake Erie commercial catch samples from large mesh (>76mm) gill nets for marketable fish by statistical district and season, 2006. n is sample size, sexes combined.

Stat. Dist.	Season*	Year-Class and Age										All Ages	
		2005	2004	2003	2002	2001	2000	1999	1998	1997	1996		
		1	2	3	4	5	6	7	8	9	10+	Average	n
Age Group Composition (%)**													
OE-1	Spring	-	-	-	20	50	30	-	-	-	-	5.1	40
	Fall	-	3	46	21	13	13	5	-	-	-	4.0	39
OE-2	Fall	-	32	50	16	3	-	-	-	-	-	2.9	38
Mean Total Length (mm)													
OE-1	Spring	-	-	-	238	257	266	-	-	-	-	256.1	40
	Fall	-	216	230	239	249	275	283	-	-	-	242.2	39
OE-2	Fall	-	209	231	241	256	-	-	-	-	-	225.9	38
Mean Round Weight (g)													
OE-1	Spring	-	-	-	-	-	-	-	-	-	-	-	-
	Fall	-	177	223	257	298	386	379	-	-	-	267.2	39
OE-2	Fall	-	168	242	267	331	-	-	-	-	-	225.0	38

* Winter = January - March Spring = April - June Summer = July - September Fall = October - December

** A hyphen (-) indicates no fish of that age, a zero (0) indicates less than 0.5% fish of that age

Table 2.9 Lake whitefish year-class composition, average total length (mm) and weight (g) from Lake Erie commercial catch samples from large mesh (>76mm) gill nets by statistical district and season, 2006. n is sample size, sexes combined.

Stat. Dist.	Season*	Year-Class and Age										All Ages	
		2005	2004	2003	2002	2001	2000	1999	1998	1997	1996		
		1	2	3	4	5	6	7	8	9	10+	Average	n
Age Group Composition (%)**													
OE-1	Spring	-	-	73	7	20	-	-	-	-	-	3.5	15
	Fall	-	-	52	9	27	4	3	1	-	5	4.3	160
OE-4	Spring	-	-	100	-	-	-	-	-	-	-	3.0	40
OE-5	Spring	-	-	50	5	-	40	-	3	-	3	4.6	40
Mean Total Length (mm)													
OE-1	Spring	-	-	400	411	496	-	-	-	-	-	420	15
	Fall	-	-	430	444	514	511	552	534	-	589	469	160
OE-4	Spring	-	-	374	-	-	-	-	-	-	-	374	40
OE-5	Spring	-	-	367	444	-	507	-	501	-	546	435	40
Mean Round Weight (g)													
OE-1	Spring	-	-	624	697	1128	-	-	-	-	-	729	15
	Fall	-	-	778	890	1338	1395	1731	1433	-	2030	1056	160
OE-4	Spring	-	-	508	-	-	-	-	-	-	-	508	40
OE-5	Spring	-	-	519	888	-	1467	-	1437	-	1685	969	40

* Season: Spring = April - June Summer = July - September Fall = October - December

** A hyphen (-) indicates no fish of that age, a zero (0) indicates less than 0.5% fish of that age

3. SPORT FISHERY

3.1. Angler Diary Program (Lake Erie)

The Lake Erie Sport Fishery Diary Program is an ongoing survey that allows the Lake Erie Management Unit to track general trends in catch rates, angler activity and the quality of the sport fishery. Each year diarists participate in the program by filling out diaries recording fishing activity and catch rates. Other information such as fish health or unusual sightings of exotic species or fish disease are also recorded and brought to the attention of the lake management unit.

The Lake Erie Sport Fishery Diary Program entered its 23rd year in 2006. The survey area that the study covers is illustrated in Figure 3.1.1. In this program volunteer anglers completed a page in a diary for each trip they took. Fishing location, fishing duration, numbers of fish kept and released and biological information were also recorded. Participants are updated on diary results through a series of Angler Outreach public presentations as well as reports providing them with the results of both their personal information and results of the overall program.

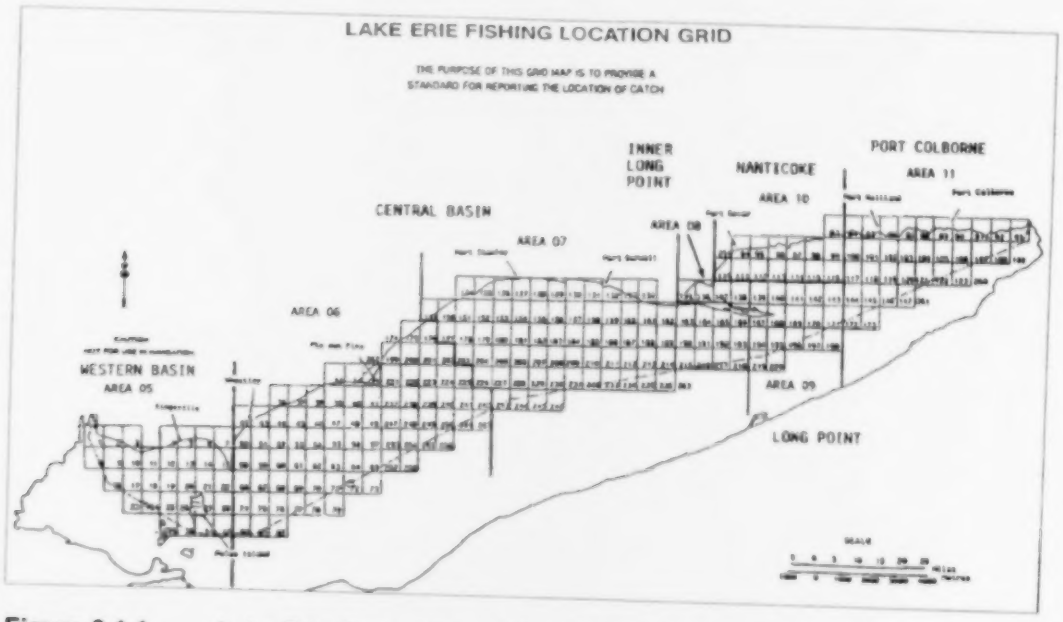

Figure 3.1.1 Lake Erie Sport Fishery Diary Survey Area, 2006.

In 2006, 93 volunteers returned diaries. This was twenty less than the number of participants in 2005. Of these volunteers, 68 (73%) have been participating in the program for three years or more. Fifty-two participants (56%) have been involved in the program for ten years or more. Results of the report are limited to non-charter boat anglers due to the small sample size of charter boat operator participants.

In the sport fishery diary program, Lake Erie is divided into seven areas, Western Basin (area 05), West-Central Basin (area 06), East-Central Basin (area 07), Inner Long Point Bay (area 08), Long Point Bay (area 09), Nanticoke (area 10) and Port Colborne (area 11). Angler catches are reported by grid location within these areas (Figure 3.1.1).

Total diary effort and catch for each area is presented in Tables 3.1.1, 3.1.2 and 3.1.3. Observed catch rates of selected preferred species by area, for the years 1986 to 2006, are presented in Table 3.1.4 and Table 3.1.5.

Western Basin

Fifty-three percent of diary participant effort in the Western Basin was directed towards walleye, while 44% was directed towards yellow perch (Table 3.1.4). The proportion of effort directed at yellow perch had been increasing from 1999 to 2004, decreased in 2005 by 45% and returned to the same percentage as in 2004 (Figure 3.1.2). Walleye success rates decreased to 2004 levels and were 36% higher than the 1990 – 2006 average (Table 3.1.4).

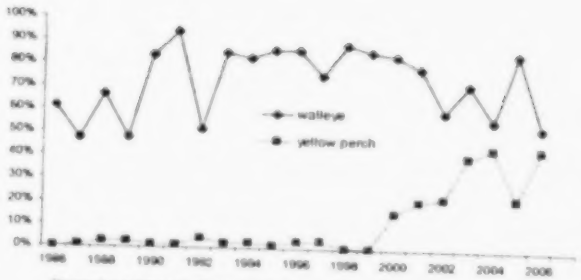

Figure 3.1.2 Western Basin Angler Percent Area Effort, L. Erie, Sport Diary Program, 1986-2006

Diary participants submitted 31 walleye scale samples and 349 total lengths from their catches in the Western Basin. All fish were combined in a Length age Composition Key (L.A.C.K.) for age distribution. The mean age of walleye was 3.5 (334 fish) and the mean total length was 17.4 inches (44.1 cm) (349 fish). Age 3 (2003 year class) represented 72% of the sampled fish, while age 4 (2002 year class) represented 15% (Figure 3.1.3).

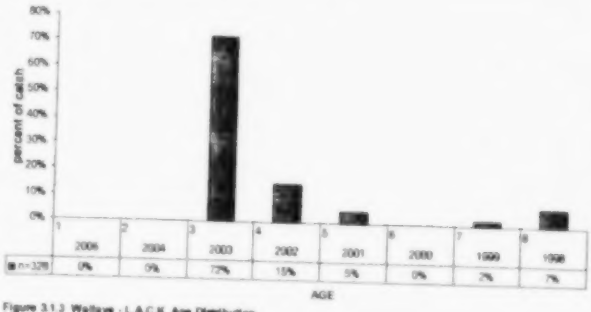

Figure 3.1.3 Walleye - L.A.C.K. Age Distribution, Western Basin, L. Erie Sport Diary Program, 2006

Yellow perch success rates increased 31% and were 28% higher than the 1990 – 2006 average (Table 3.1.4).

Diary participants submitted 6 yellow perch scale samples and 846 total lengths from their catches in the Western Basin. The mean total length was 8.60 inches (21.8 cm).

Walleye and yellow perch were the main species sought by diarists in the west basin during the 2006 season (Table 3.1.4). Two trips for rainbow trout and four trips for smallmouth bass were reported in the western basin in 2006.

West-Central Basin

The majority of angling effort recorded by diarists in the West-Central Basin was directed towards rainbow trout (89%), walleye (73%) and yellow perch (3%), (Table 3.1.4). Rainbow trout effort continues to be greater than that of walleye since 2000. Rainbow trout and walleye are often targeted simultaneously. Yellow perch percent effort, increasing since 2000, decreased in 2006 by 9% (Figure 3.1.4).

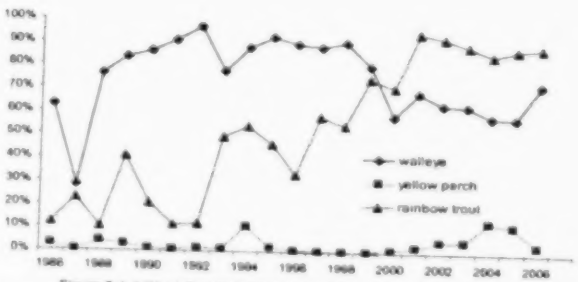

Figure 3.1.4 West-Central Basin Angler Percent Area Effort, L. Erie, Sport Diary Program, 1986-2006

Walleye success rates were 3 times higher than those in 2005 and were 12% higher than the 1990–2006 average (Table 3.1.4). Rainbow trout success rates were 8% higher than those in 2005, and were 52% higher than the 1990–2006 average. Yellow perch success rates increased by 25% from those in 2005 and were 23% higher than the 1990 - 2006 average, (Table 3.1.4).

East-Central Basin

The majority of diary angling effort in the East-Central Basin was directed towards walleye (80%), rainbow trout (68%) and yellow perch (16%), (Table 3.1.4). Walleye and rainbow percent angler effort have followed the same trend since 1998, however in 2006 walleye increased by 7% while rainbow decreased by the same amount. Yellow perch effort, which has been increasing steadily from 1999 to 2004, continued to decrease in 2006, (Figure 3.1.5).

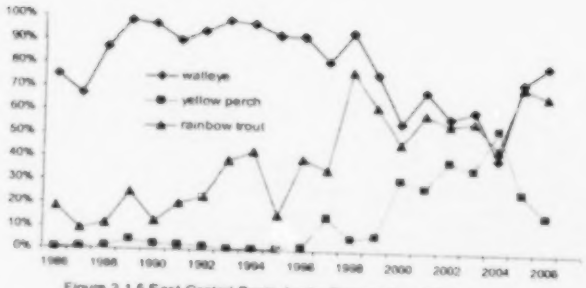

Figure 3.1.5 East-Central Basin Angler Percent Area Effort, L. Erie, Sport Diary Program, 1986-2006

Walleye success rates were 2 times higher than those in 2005 and were 32% higher than the 1990 - 2006 average (Table 3.1.4). Rainbow trout success rates decreased 41% from those in 2005 and were similar to the 1990 - 2006 average. Yellow perch success rates increased by 14% from those in 2005 and were 31% greater than the 1990 - 2006 average.

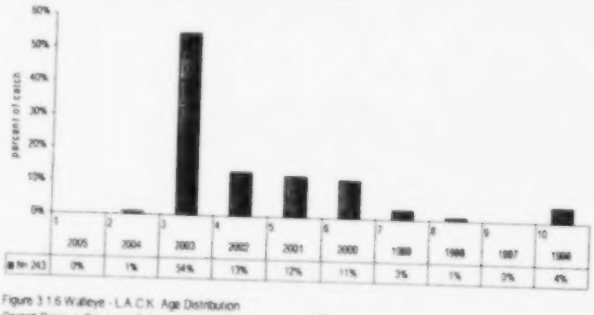

Figure 3.1.6 Walleye - L.A.C.K. Age Distribution Central Basin, L Erie sport Fishery Diary, 2006

Diary participants submitted 53 walleye scale samples and 265 total lengths from their catches in the Central Basin for 2006. All fish were combined in a L.A.C.K. for age distribution. The mean age was 4.1 (243 fish) and the mean total length was 21.2 inches (53.7 cm), (265 fish). Age 3 (2003 year class) represented 54% fish, age 4 (2002 year class) represented 13%, age 5 (2001 year class) represented 12% and age 6 (2000 year class) represented 11% of sampled fish from the Central Basin of Lake Erie, (Figure 3.1.6).

Diary participants submitted 7 rainbow trout scale samples and 132 total lengths from their catches in the East-Central Basin. The mean total length was 22.1 inches (56.1cm), (131 fish).

Seven yellow perch scale samples and 864 total lengths were submitted, with a mean total length of 8.2 inches (20.7 cm).

Inner Long Point Bay

The majority of diary angling effort in the Inner Long Point Bay was directed towards smallmouth bass (57%), largemouth bass (14%), yellow perch (31%) and northern pike (11%), (Table 3.1.5). Smallmouth bass percent angler effort has increased by 6% from 2005, while yellow perch percent effort has decreased by 6%. Largemouth bass percent effort has decreased by 9%. Northern pike percent effort has increased by 5% from 2005 (Figure 3.1.7).

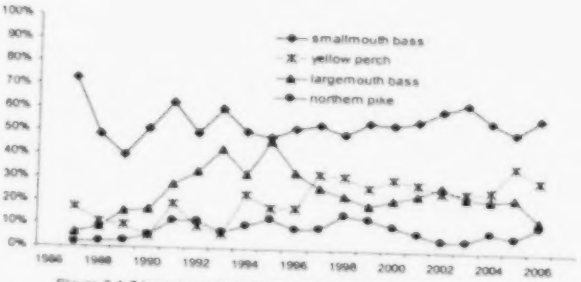

Figure 3.1.7 Inner Long Point Bay Angler Percent Area Effort, L. Erie, Sport Diary Program, 1986-2006

Smallmouth bass success rates increased by 39% from those in 2005, and were 28% higher than the 1990 - 2006 average (Table 3.1.5). Largemouth bass success rates decreased by 9% from those in 2005 and were 81% higher than the 1990 - 2006 average. Yellow perch success rates increased by 14% from those in 2005 and were 96% higher than the 1990 - 2006 average. Northern pike success rates decreased by 34% from those in 2005 and were 95% higher than the 1990 - 2006 average. Diary participants submitted 3 yellow perch scale samples and 109 total lengths from their catches in the Inner Long Point Bay. The mean total length was 9.5 inches (24.2 cm). Eighteen smallmouth bass scale samples and 138 total lengths were submitted, with a mean total length of 13.8 inches (35.0 cm).

Long Point Bay

The majority of diary angling effort in Long Point Bay was directed at rainbow trout (47%), walleye (48%), northern pike (11%), and smallmouth bass (21%), (Table 3.1.5). Preference for rainbow trout has declined since 2003, while walleye preference has fluctuated over the same period. There was a 3% decrease percent angler effort for smallmouth bass in 2006. Northern pike percent angler effort has increased by 5% (Figure 3.1.8).

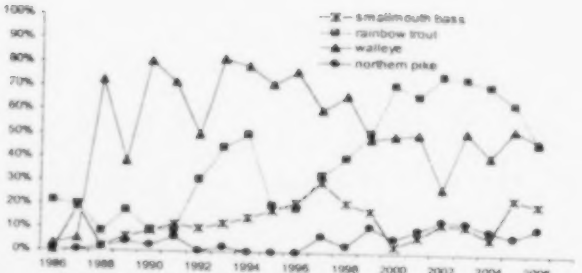

Figure 3.1.8 Long Point Bay Angler Percent Area Effort, L. Erie, Sport Diary Program, 1986-2006

Rainbow trout success rates increased by 61% from those in 2005, and were 13% higher than the 1990 - 2006 average (Table 3.1.5). Walleye success rates were 2 times higher than those in 2005, and were 83% higher than the 1990 - 2006 average. Smallmouth bass success rates increased by 100% from those in 2005, and were 49% higher than the 1990 - 2006 average. Northern Pike success rates increased by 88% from those in 2005, and were 33% higher than the 1990 - 2006 average.

There was insufficient biological data submitted to any analysis for this area in 2006.

Nanticoke

The majority of diary angling effort in Nanticoke was directed towards yellow perch (79%), smallmouth bass (4%), rainbow trout (15%), and walleye (18%), (Table 3.1.5). Yellow perch angler percent effort increased by 11% from 2005. Walleye remained the same from 2005, while rainbow trout decreased by 4%. Smallmouth bass continued the trend from 2003, decreasing by a further by 6% (Figure 3.1.9).

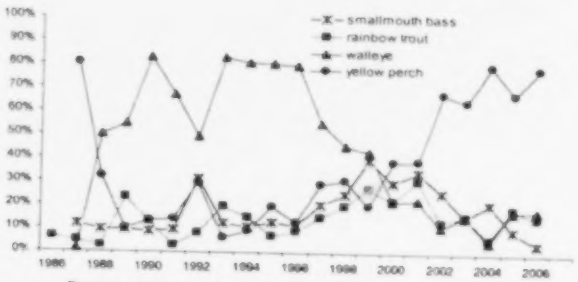

Figure 3.1.9 Nanticoke Angler Percent Area Effort, L. Erie, Sport Diary Program, 1986-2006

Yellow perch success rates increased by 21% from those in 2005, and were 9% higher than the 1990 - 2006 average (Table 3.1.5). Walleye success rates increased by 103% from those in 2005, and were 28% lower than the 1990 - 2006 average. Rainbow trout success rates decreased by 78% from those in 2005, and were 69% lower than the 1990 - 2006 average. Smallmouth bass success rates decreased by 9% from those in 2005 and they were 15% higher than the 1990 - 2006 average.

Diary participants submitted 8 yellow perch scale samples and 183 total lengths from their catches from the Nanticoke Area. The mean total length was 8.8 inches (23.3 cm). There were no walleye or rainbow trout scale samples or total lengths were submitted. Only 4 smallmouth total lengths were submitted.

Port Colborne

The majority of diary angling effort in the Port Colborne area continues to be directed towards walleye (84%), while smallmouth bass (11%) and yellow perch (7%) were the next most sought species in this area (Table 3.1.5). Angler effort towards these three species has shown similar trends in recent years (Figure 3.1.10).

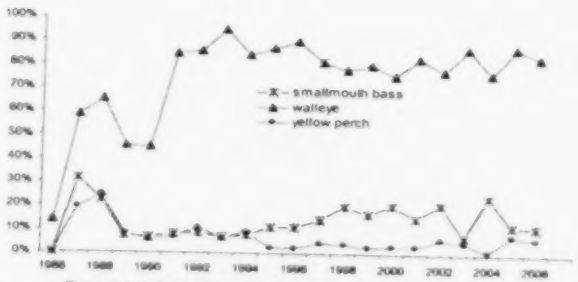

Figure 3.1.10 Port Colborne Angler Percent Area Effort, L. Erie, Sport Diary Program, 1986-2006

Walleye success rates increased by 23% from those in 2005 and were 67% higher than the 1990 - 2006 average (Table 3.1.5). Smallmouth bass success rates increased by 80% from those in 2005 and were 59% higher than the 1990 - 2006 average. Yellow perch success rates were 16 times greater than those in 2005 and were 2.7 times higher than the 1990 - 2006 average.

Diary participants submitted 113 walleye scale samples and 265 total lengths from their catches in the Port Colborne Area. All fish were combined in a L.A.C.K. for age distribution. The mean age was 5.8 (252 fish) and the mean total length was 22.0 inches (56.0cm), (265 fish). Age 3 (2003 year class) represented 36% , the remaining fish ranged in age from 4 to 14 and represented from 1 to 15 % of the catch (Figure 3.1.11).

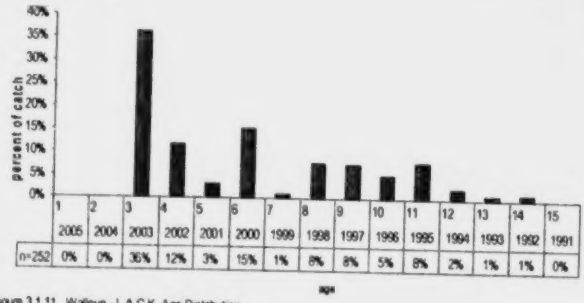

Figure 3.1.11 Walleye - L.A.C.K. Age Distribution, Port Colborne, L. Erie Sport Diary Program, 2006

Diary participants submitted 27 smallmouth scale samples and 135 total lengths from their catches in the Port Colborne Area. All fish were combined in a L.A.C.K. for age distribution. The mean age was 4.6 (69 fish) and the mean total length was 13.0 inches (33.0cm), (135 fish). Age 4 (2002 year class) represented 48% and the age 5 (2002 year class 47% of the sampled fish (Figure 3.1.12).

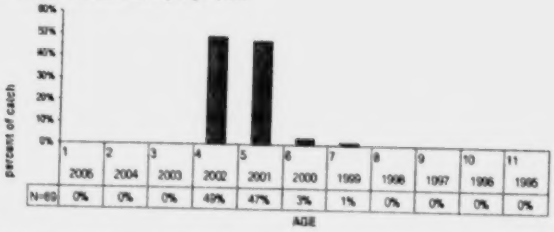

Figure 3.1.12 Smallmouth Bass - L.A.C.K. Age Distribution, Port Colborne, L. Erie Sport Diary Program, 2006

Table 3.1.1 Total effort by survey area, reported by Sport Fishery Diary Program non-charter boat participants, 2006.

Survey Area	Number of Diarists	Number of Trips	Number of Rods per Trip	Total Rod Hours
Western Basin	17	109	2.7	1,375
West Central Basin	22	142	5.1	4,207
East Central Basin	27	182	3.9	3,803
Inner Long Point Bay	37	179	2.5	1,857
Long Point Bay	13	55	3.2	644
Nanticoke	19	126	2.4	1,020
Port Colborne	15	144	3.3	2,328
Total	**93***	**937**	**3.3**	**15,234**

*Diarist may fish more than one survey area in a year.

Table 3.1.2 Total effort by survey area, reported by Sport Fishery Diary Program non-charter boat participants, 1986-2006.

Year	Western Basin			West-Central			East-Central			Inner Long Point Bay		
	No. of Diarists	Total Effort		No. of Diarists	Total Effort		No. of Diarists	Total Effort		No. of Diarists	Total Effort	
		Trips	Rod Hours		Trips	Rod Hours		Trips	Rod Hours		Trips	Rod Hours
1986	13	123	1,234	18	226	3,176	20	306	4,078	14	97	864
1987	10	118	1,272	30	392	5,323	34	355	4,794	18	150	1,462
1988	26	280	2,886	36	422	7,100	58	748	10,781	33	226	2,439
1989	33	244	2,175	33	421	4,883	45	444	4,412	49	229	2,139
1990	38	231	2,068	45	388	5,020	51	404	4,195	59	265	2,445
1991	34	234	2,538	38	318	3,841	60	474	5,719	50	311	2,917
1992	34	254	2,220	59	435	6,104	73	383	5,070	60	286	4,068
1993	39	306	4,428	48	428	6,537	51	407	4,995	56	331	3,347
1994	14	152	885	41	308	4,190	43	322	3,583	58	373	4,047
1995	35	157	1,209	58	382	6,248	47	267	2,762	61	442	4,798
1996	43	254	2,436	45	305	6,200	43	214	3,100	55	324	3,354
1997	29	145	1,499	40	265	6,691	37	224	3,573	80	564	5,881
1998	39	210	2,016	41	265	5,879	26	163	2,953	61	508	4,821
1999	22	112	1,066	37	208	4,826	29	176	2,767	65	383	3,809
2000	24	78	732	31	240	5,175	21	173	3,672	52	312	2,899
2001	24	88	833	28	147	3,769	20	142	2,457	53	236	2,449
2002	14	74	809	25	138	2,594	19	154	2,108	45	255	2,429
2003	20	147	1,508	26	191	3,690	21	142	2,190	45	203	1,882
2004	31	199	2,663	24	157	3,322	19	112	1,556	42	277	2,740
2005	26	204	2,638	27	174	4,351	25	186	3,669	45	200	2,121
2006	17	109	1,375	22	142	4,207	27	182	3,803	37	179	1,857
90-06 Avg.	**28**	**174**	**1,819**	**37**	**264**	**4,861**	**36**	**243**	**3,422**	**54**	**321**	**3,286**

Year	Long Point Bay			Nanticoke			Port Colborne			Total Lake Effort		
	No. of Diarists	Total Effort		No. of Diarists	Total Effort		No. of Diarists	Total Effort		No. of Diarists	Total Effort	
		Trips	Rod Hours		Trips	Rod Hours		Trips	Rod Hours		Trips	Rod Hours
1986	15	125	1,636	16	152	834	6	97	608	50	1,128	12,430
1987	15	65	781	15	150	572	9	172	1,499	66	1,402	15,703
1988	21	95	3,601	28	211	1,506	13	267	1,818	131	2,249	30,131
1989	45	289	3,607	46	371	3,318	12	271	2,060	146	2,269	22,594
1990	57	360	4,658	58	450	4,312	19	243	2,320	166	2,341	25,018
1991	51	239	2,961	53	377	3,787	33	392	3,966	189	2,345	25,729
1992	57	287	3,767	56	334	2,728	28	342	4,009	207	2,321	27,966
1993	54	285	3,685	55	364	3,698	24	262	3,242	185	2,383	29,933
1994	37	157	2,005	49	290	3,201	24	243	2,825	157	1,845	20,736
1995	35	132	1,949	34	177	1,737	39	361	4,849	198	1,918	23,551
1996	28	124	1,713	35	241	3,164	33	318	5,868	181	1,780	25,834
1997	30	102	1,690	98	219	2,683	56	518	9,129	203	2,037	31,145
1998	35	171	2,776	29	204	1,846	42	486	7,540	176	2,007	27,831
1999	29	138	2,488	34	203	1,765	44	397	7,319	174	1,617	24,041
2000	30	159	2,313	29	183	1,534	29	270	4,459	142	1,415	20,785
2001	29	136	1,791	27	156	1,195	27	213	4,418	132	1,118	16,913
2002	29	124	1,531	26	162	1,329	24	228	4,265	106	1,135	15,063
2003	21	78	979	26	166	1,603	24	169	3,273	113	1,096	15,125
2004	19	68	818	22	155	1,298	22	147	2,608	114	1,115	15,005
2005	21	82	1,030	23	187	1,634	19	175	3,143	113	1,208	18,585
2006	13	55	644	19	126	1,020	15	144	2,328	93	937	15,234
90-06 Avg.	**34**	**159**	**2,165**	**40**	**235**	**2,267**	**30**	**289**	**4,445**	**156**	**1,683**	**22,264**

Table 3.1.3 Total catch and harvest reported by sport fishery diary non-charter boat participants, Lake Erie Sport Fishery Diary Program, 2006.

Species	Western Basin		West-Central Basin		East-Central Basin		Inner Long Point Bay		Long Point Bay		Nanticoke		Port Colborne		Total	
	Caught	Harvested	Caught	Harvested	Caught	Harvested	Caught	Harvested	Caught	Harvested	Caught	Harvested	Caught	Harvested	Caught	Harvested
Lake Sturgeon	1	0														
Bowfin	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-
Pink Salmon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coho Salmon	-	-	-	-	4	4	-	-	4	2	-	-	-	-	8	6
Chinook Salmon	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rainbow Trout	6	5	758	676	186	175	3	3	29	19	4	3	5	4	991	885
Brown Trout	-	-	-	-	1	1	-	-	-	-	-	-	-	-	1	1
Lake Trout	-	-	-	-	-	-	-	-	9	1	-	-	-	-	9	1
Rainbow Smelt			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Northern Pike	-	-	3	-	-	-	155	33	72	24	2	-	-	-	232	57
Muskellunge	-	-	-	-	-	-	1	-	-	-	-	-	2	1	3	1
Common Carp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brown Bullhead	-	-	-	-	-	-	2	-	-	-	3	-	-	-	5	-
Channel Catfish	-	-	-	-	66	40	-	-	-	-	-	-	8	-	74	40
Burbot	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2	-
White Perch	346	-	3	-	9	2	4	-	-	-	39	1	21	3	422	6
White Bass	65	2	3	-	-	-	8	-	-	-	11	-	6	1	93	3
Rock Bass	-	-	1	-	-	-	150	18	4	-	47	1	-	-	202	19
Pumpkinseed	-	-	-	-	-	-	33	3	1	1	2	-	-	-	36	4
Bluegill	-	-	40	25	-	-	83	-	-	-	2	1	-	-	125	26
Smallmouth Bass	35	3	-	-	6	3	1,179	540	218	150	231	43	478	31	2,147	770
Largemouth Bass	-	-	59	-	-	-	494	41	3	-	6	-	4	-	566	41
White Crappie	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Black Crappie	-	-	2	2	-	-	-	-	-	-	-	-	-	-	2	2
Yellow Perch	3,091	2,232	784	523	2,054	1,336	5,341	1,915	902	492	3,987	2,743	703	556	16,862	9,797
Walleye	499	400	697	661	800	701	2	2	41	39	11	14	538	416	2,588	2,233
Round Goby	21	15	-	-	196	157	7	3	2	-	206	131	8	8	440	314
Freshwater Drum	140	3	71	10	93	7	5	1	4	-	20	-	36	-	369	21
Total	**4,203**	**2,660**	**2,422**	**1,897**	**3,415**	**2,426**	**7,467**	**2,559**	**1,289**	**728**	**4,573**	**2,937**	**1,809**	**1,020**	**25,178**	**14,227**

Table 3.1.4 Angler success rates (CPUE) of non-charter boat anglers targeting particular species, Western Basin, West and East-Central Basin survey areas, Lake Erie, 1986-2006[a]. Effort may be directed at more than one species simultaneously.

Western Basin (Area 05)

Year	Total Rod Hours	Walleye				Yellow Perch			
		Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort
1986	1,508	100	926	0.669	61%				0%
1987	2,566	109	1,216	0.657	47%	3	19	2.632	1%
1988	4,154	262	2,753	0.844	66%	22	111	0.957	3%
1989	3,723	198	1,783	0.439	48%	10	96	0.173	3%
1990	2,304	212	1,924	0.542	84%	5	25	8.240	1%
1991	2,405	211	2,259	0.459	94%	2	33	10.738	1%
1992	3,087	203	1,591	0.591	52%	15	135	1.574	4%
1993	2,220	279	1,887	0.510	85%	9	44	2.689	2%
1994	885	126	734	0.339	83%	4	22	0.090	2%
1995	1,204	136	1,036	0.479	86%	3	18	0.333	1%
1996	2,428	213	2,097	0.223	86%	12	71	1.275	3%
1997	1,499	91	1,131	0.189	75%	10	54	3.258	4%
1998	2,016	171	1,791	0.423	89%	2	9	1.347	0%
1999	1,071	91	919	0.457	86%	1	5	0.188	0%
2000	729	64	613	0.405	84%	8	117	3.641	16%
2001	833	66	657	0.594	79%	24	175	5.383	21%
2002	809	54	486	0.362	60%	13	183	5.197	23%
2003	1,508	102	1,087	0.534	72%	60	609	5.158	40%
2004	2,663	114	1,499	0.717	56%	93	1,187	6.325	45%
2005	2,638	173	2,254	1.02	85%	42	588	3.505	22%
2006	1,375	68	735	0.679	53%	44	604	5.082	44%
90-06 Avg.	**1,748**	**140**	**1,335**	**0.501**	**77%**	**20**	**228**	**3.648**	**12%**

West-Central Basin (Area 06)

Year	Total Rod Hours	Walleye				Rainbow Trout				Yellow Perch				Coho			
		Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort
1986	3,176	136	1,997	0.230	63%	26	383	0.104	12%	11	91	0.560	3%	128	1,910	0.140	60%
1987	5,323	125	1,506	0.438	28%	71	1,207	0.118	23%	4	14	0.491	0%	253	3,663	0.167	69%
1988	7,100	372	5,416	0.612	76%	40	750	0.028	11%	22	287	0.206	4%	52	724	0.019	10%
1989	4,883	354	4,070	0.632	83%	138	2,001	0.036	41%	16	146	0.363	3%	136	2,048	0.012	42%
1990	5,020	328	4,326	0.642	86%	54	1,031	0.010	21%	11	59	0.659	1%	154	2,274	0.013	45%
1991	3,841	287	3,488	0.366	91%	26	441	0.032	11%	4	27	0.679	1%	146	1,854	0.002	48%
1992	6,104	410	5,886	0.501	96%	54	733	0.056	12%	10	96	0.385	2%	183	2,945	0.010	48%
1993	6,537	395	5,081	0.308	78%	231	3,217	0.118	49%	14	94	1.521	1%	146	2,112	0.028	32%
1994	4,190	279	3,670	0.373	88%	172	2,271	0.086	54%	20	486	2.923	11%	68	922	0.007	22%
1995	6,248	348	5,768	0.215	92%	150	2,893	0.055	46%	11	130	6.243	2%	74	1,223	0.001	20%
1996	6,200	244	5,543	0.213	89%	89	2,070	0.049	33%	6	50	5.500	1%	29	611	0.010	10%
1997	6,691	201	5,912	0.077	88%	122	3,909	0.083	58%	4	36	9.103	1%	45	1,229	0.018	18%
1998	5,879	224	5,298	0.076	90%	138	3,191	0.117	54%	4	18	3.611	0%	52	1,172	0.012	20%
1999	4,826	146	3,865	0.033	80%	140	3,611	0.110	75%	2	20	11.150	0%	46	1,363	0.021	28%
2000	4,251	124	2,498	0.011	59%	154	3,013	0.308	71%	5	46	2.863	1%	75	1,575	0.028	37%
2001	3,769	82	2,596	0.016	69%	131	3,554	0.136	94%	9	99	5.088	3%	0	0	0.000	0%
2002	2,594	75	1,656	0.013	64%	121	2,402	0.275	93%	14	126	3.852	5%	3	88	0.182	3%
2003	3,690	126	2,343	0.046	63%	161	3,288	0.234	89%	16	186	4.047	5%	1	29	0.175	1%
2004	3,322	74	1,951	0.037	59%	118	2,827	0.187	85%	37	442	6.117	13%	2	92	0.043	3%
2005	4,351	86	2,525	0.069	58%	132	3,812	0.185	88%	38	520	4.215	12%	0	0	0.000	0%
2006	4,207	91	3,058	0.215	73%	118	3,733	0.200	89%	9	145	5.253	3%	0	0	0.000	0%
90-06 Avg.	**4,807**	**207**	**3,851**	**0.189**	**78%**	**124**	**2,706**	**0.132**	**60%**	**13**	**151**	**4.306**	**4%**	**60**	**1,029**	**0.032**	**20%**

East-Central Basin (Area 07)

Year	Total Rod Hours	Walleye				Rainbow Trout				Yellow Perch				Coho			
		Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort
1986	4,078	213	3,050	0.340	75%	42	753	0.073	18%	5	17	0.000	0%	132	1,865	0.134	46%
1987	4,794	234	3,202	0.493	67%	24	423	0.104	9%	7	33	6.226	1%	129	1,829	0.107	38%
1988	10,781	701	9,361	0.823	87%	74	1,208	0.043	11%	30	151	5.827	1%	98	1,567	0.067	15%
1989	4,412	430	4,312	0.653	98%	99	1,086	0.016	25%	18	194	1.942	4%	101	1,190	0.032	27%
1990	4,195	385	4,045	0.559	96%	40	517	0.006	12%	11	110	1.091	3%	83	938	0.016	22%
1991	5,719	415	5,133	0.367	90%	88	1,138	0.090	20%	8	134	2.111	2%	104	1,288	0.026	23%
1992	5,070	358	4,757	0.410	94%	70	1,169	0.023	23%	12	77	0.978	2%	91	1,233	0.023	24%
1993	4,995	396	4,912	0.304	98%	153	1,945	0.055	39%	7	44	0.182	1%	126	1,391	0.017	28%
1994	3,583	310	3,475	0.309	97%	131	1,521	0.007	42%	2	37	0.270	1%	67	892	0.000	25%
1995	2,762	249	2,547	0.326	92%	39	426	0.068	15%	5	27	5.704	1%	31	349	0.017	13%
1996	3,100	190	2,853	0.176	92%	72	1,231	0.059	40%	9	57	1.035	2%	29	444	0.009	14%
1997	3,573	143	2,902	0.115	81%	54	1,241	0.088	35%	69	514	3.426	14%	21	410	0.005	11%
1998	2,953	138	2,767	0.088	94%	103	2,278	0.119	77%	24	161	0.567	5%	44	774	0.001	26%
1999	3,708	133	2,825	0.069	76%	97	2,302	0.135	62%	38	252	2.803	7%	39	864	0.013	23%
2000	1,522	52	840	0.037	55%	41	708	0.072	47%	61	470	5.291	31%	12	226	0.004	15%
2001	2,457	67	1,697	0.048	69%	58	1,455	0.056	59%	70	684	4.199	28%	8	76	0.026	3%
2002	2,108	55	1,217	0.061	58%	52	1,160	0.109	55%	91	828	4.101	39%	0	0	0.000	0%
2003	2,190	65	1,329	0.110	61%	55	1,231	0.068	56%	71	784	1.534	36%	0	0	0.000	0%
2004	1,556	38	632	0.019	41%	40	698	0.119	45%	66	831	2.475	53%	0	0	0.000	0%
2005	3,669	109	2,688	0.116	73%	101	2,617	0.123	71%	76	957	2.829	26%	1	57	0.035	2%
2006	3,803	124	3,054	0.262	80%	100	2,571	0.072	68%	47	615	3.221	16%	1	27	0.037	1%
90-06 Avg.	**3,351**	**190**	**2,804**	**0.199**	**79%**	**76**	**1,424**	**0.075**	**45%**	**39**	**387**	**2.460**	**16%**	**39**	**528**	**0.013**	**14%**

[a]CPUE represents observed catch divided by observed angling effort in rod-hours directed at that particular species.

Table 3.1.5 Angler success rates (CPUE) of non-charter boat anglers targeting particular species, Inner Long Point Bay, Long Point Bay, Nanticoke and Port Colborne survey areas, Lake Erie, 1986-2006*. Effort may be directed at more than one species simultaneously.

Inner Long Point Bay (Area 08)

Year	Total Rod Hours	Smallmouth Bass				Yellow Perch				Largemouth Bass				Northern Pike			
		Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort
1986																	
1987	1,309	92	949	1.043	72%	17	229	8.957	17%	4	66	0.581	7%	3	28	0.746	2%
1988	3,615	180	1,753	0.800	48%	33	398	3.769	11%	11	318	0.921	9%	9	92	0.412	3%
1989	3,057	121	1,207	0.662	39%	35	295	4.314	10%	7	481	0.470	16%	10	92	0.459	3%
1990	3,405	198	1,735	0.719	51%	21	187	5.588	5%	16	564	0.806	16%	22	191	0.272	6%
1991	2,614	161	1,633	0.658	62%	46	432	5.301	16%	16	717	0.958	27%	26	312	0.183	12%
1992	4,958	214	2,304	0.708	46%	47	438	2.172	9%	17	1,534	0.933	33%	38	550	0.187	12%
1993	3,347	196	2,008	0.626	60%	27	208	1.937	6%	19	1,430	0.774	43%	28	238	0.361	7%
1994	4,047	171	2,030	0.688	50%	80	933	3.911	23%	16	1,305	0.850	32%	47	419	0.258	10%
1995	4,798	203	2,298	0.657	48%	69	859	4.714	18%	22	2,233	0.740	47%	59	626	0.241	13%
1996	3,354	158	1,735	0.788	52%	53	601	3.825	18%	11	1,111	0.678	33%	29	251	0.179	9%
1997	5,981	282	3,145	0.870	53%	178	1,903	4.045	32%	24	1,551	0.981	26%	54	542	0.286	9%
1998	4,821	235	2,391	0.858	50%	150	1,519	3.829	32%	19	1,111	0.781	23%	78	742	0.259	15%
1999	3,811	188	2,097	0.643	55%	110	1,034	4.080	27%	15	734	0.917	19%	58	517	0.330	14%
2000	2,899	148	1,583	0.826	54%	87	887	6.263	31%	14	640	0.879	22%	32	312	0.514	11%
2001	2,449	121	1,383	0.747	56%	65	598	4.081	25%	13	582	0.984	24%	24	191	0.419	8%
2002	2,429	136	1,463	0.698	60%	84	815	3.777	25%	14	676	1.241	28%	16	114	0.167	5%
2003	1,882	118	1,191	1.112	63%	40	478	3.812	25%	12	437	1.180	23%	13	85	0.496	5%
2004	2,740	125	1,529	0.624	56%	78	712	4.015	26%	20	617	1.278	23%	23	238	0.246	9%
2005	2,121	83	1,064	0.720	51%	70	779	7.923	37%	55	488	2.022	23%	12	135	1.049	6%
2006	1,857	87	1,053	1.004	57%	66	572	9.042	31%	25	255	1.838	14%	24	210	0.694	11%
90-06 Avg.	3,380	164	1,802	0.782	59%	73	758	4.624	23%	23	940	1.014	27%	34	338	0.355	9%

Long Point Bay (Area 09)

Year	Total Rod Hours	Rainbow				Walleye				Northern Pike				Smallmouth Bass			
		Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort
1986	1,900	23	406	0.090	21%	3	56	0.054	3%				0%				0%
1987	814	9	160	0.069	20%	4	43	0.047	5%	1	4	0.250	0%	18	153	0.680	19%
1988	1,391	5	118	0.066	9%	71	1,011	0.459	73%	1	21	0.048	2%	4	30	1.167	2%
1989	3,558	42	615	0.044	17%	104	1,380	0.079	39%	16	155	0.543	4%	25	229	1.597	6%
1990	4,304	22	397	0.048	9%	255	3,456	0.205	80%	9	101	0.446	2%	32	381	0.855	9%
1991	2,793	22	266	0.068	10%	180	2,005	0.125	72%	93	174	0.189	6%	28	330	1.074	12%
1992	3,829	89	1,170	0.143	31%	141	1,909	0.048	50%	2	9	0.000	0%	28	380	0.708	10%
1993	3,886	113	1,631	0.072	44%	222	3,006	0.164	82%	6	76	0.132	2%	47	450	1.044	12%
1994	2,005	70	997	0.022	50%	112	1,581	0.089	79%	0	0	0.000	0%	29	280	1.453	15%
1995	1,949	24	380	0.087	20%	87	1,389	0.088	71%	0	0	0.000	0%	31	345	1.216	18%
1996	1,713	20	321	0.044	19%	78	1,318	0.105	77%	0	0	0.000	0%	43	381	1.529	22%
1997	1,642	24	536	0.030	33%	49	896	0.028	61%	11	119	0.588	7%	39	492	1.229	30%
1998	2,778	51	1,114	0.068	40%	101	1,849	0.061	67%	9	83	0.545	3%	40	586	0.843	21%
1999	2,008	65	1,021	0.094	51%	58	974	0.024	49%	18	224	0.589	11%	28	357	1.150	18%
2000	2,313	100	1,647	0.241	71%	73	1,148	0.017	50%	18	144	3.395	6%	8	70	0.882	3%
2001	1,791	62	1,186	0.135	67%	58	903	0.050	50%	22	182	2.764	10%	11	128	0.478	7%
2002	1,531	87	1,157	0.079	76%	35	424	0.012	28%	20	217	0.981	14%	20	200	0.862	13%
2003	979	50	729	0.064	74%	34	506	0.018	52%	18	130	0.589	13%	12	118	0.834	12%
2004	818	40	583	0.067	71%	24	338	0.013	41%	10	82	0.540	10%	9	53	1.258	7%
2005	1,030	50	658	0.059	64%	41	548	0.055	53%	8	77	0.508	7%	20	244	0.775	24%
2006	844	18	306	0.095	47%	17	310	0.132	48%	8	74	0.962	11%	16	136	1.547	21%
90-06 Avg.	2,188	55	831	0.084	48%	91	1,333	0.072	59%	19	99	0.714	9%	28	290	1.040	15%

Nanticoke (Area 10)

Year	Total Rod Hours	Yellow Perch				Walleye				Rainbow				Smallmouth Bass			
		Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort
1986	545																
1987	587	136	457	12.545	81%	1	8	0.000	1%	4	54	0.130	9%				
1988	1,496	128	483	8.648	32%	58	749	0.298	50%	2	26	0.077	5%	6	66	0.305	12%
1989	3,329	87	327	5.990	10%	200	1,821	0.454	55%	3	38	0.053	3%	13	144	0.448	10%
1990	4,123	101	548	9.812	13%	262	3,412	0.338	83%	42	771	0.047	23%	28	317	0.787	10%
1991	3,424	62	491	4.782	14%	213	2,391	0.189	67%	11	534	0.021	13%	49	357	0.745	9%
1992	2,799	98	824	2.445	30%	156	1,359	0.096	49%	11	106	0.096	3%	55	330	1.011	10%
1993	3,668	34	232	2.980	6%	270	3,062	0.229	83%	24	225	0.111	6%	116	883	1.242	31%
1994	3,201	48	288	3.824	9%	196	2,545	0.170	81%	61	726	0.071	19%	54	455	1.019	12%
1995	1,737	57	338	5.548	19%	118	1,395	0.166	80%	31	478	0.013	15%	48	348	0.844	11%
1996	3,184	71	405	4.581	13%	155	2,513	0.144	79%	7	123	0.016	3%	27	221	0.882	13%
1997	2,583	96	778	3.982	29%	91	1,478	0.041	58%	28	288	0.076	9%	32	308	0.804	12%
1998	1,848	93	571	3.841	31%	89	836	0.059	45%	29	405	0.027	15%	55	502	1.052	21%
1999	1,785	70	354	5.901	20%	82	780	0.043	43%	34	367	0.087	20%	54	485	1.273	25%
2000	1,534	91	583	8.945	39%	27	337	0.012	22%	35	488	0.044	29%	73	696	1.498	39%
2001	1,195	67	469	4.584	39%	32	269	0.067	23%	30	339	0.121	22%	54	456	2.900	30%
2002	1,329	118	901	4.849	68%	29	152	0.000	11%	39	368	0.078	31%	49	413	2.081	30%
2003	1,663	116	1,032	4.247	64%	18	257	0.047	16%	23	176	0.079	13%	24	345	1.115	28%
2004	1,256	129	1,041	4.714	80%	4	84	0.018	5%	19	251	0.064	18%	22	245	1.906	15%
2005	1,634	140	1,107	4.093	68%	21	298	0.094	18%	7	80	0.075	5%	29	273	1.504	21%
2006	1,020	108	804	4.959	79%	14	188	0.069	18%	28	313	0.086	19%	18	185	1.708	10%
										11	109	0.019	15%	6	44	1.545	4%
90-06 Avg.	2,237	98	634	4.551	37%	103	1,251	0.086	48%	28	319	0.081	15%	45	388	1.342	19%

Port Colborne (Area 11)

Year	Total Rod Hours	Walleye				Smallmouth Bass				Yellow Perch			
		Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort	Trips	Rod Hours	CPUE	% Total Effort
1986	819	19	86	0.938	14%				0%				0%
1987	922	106	544	0.143	59%	37	282	0.804	32%	40	173	1.886	19%
1988	1,918	150	1,191	0.295	66%	67	410	0.668	23%	92	448	0.856	25%
1989	3,248	164	1,479	0.217	46%	38	238	0.882	7%	55	272	0.987	8%
1990	3,869	165	1,783	0.229	45%	30	250	0.556	6%	47	228	1.142	6%
1991	3,965	200	3,357	0.183	85%	48	322	0.848	8%	52	283	0.883	7%
1992	4,009	91	3,449	0.085	86%	52	352	0.727	9%	63	429	0.878	11%
1993	3,242	220	3,095	0.273	95%	24	221	0.847	7%	32	214	0.929	7%
1994	2,825	184	2,388	0.269	85%	33	217	0.862	8%	33	261	1.091	9%
1995	4,849	294	4,229	0.174	87%	80	537	1.364	11%	12	113	0.586	2%
1996	5,968	256	5,296	0.139	89%	55	668	1.072	11%	15	134	0.427	2%
1997	9,129	356	7,443	0.135	82%	135	1,329	1.311	15%	47	411	0.481	5%
1998	7,540	310	5,900	0.112	78%	150	1,526	1.361	20%	94	307	0.886	4%
1999	7,231	250	5,790	0.113	80%	117	1,232	1.365	17%	28	201	0.901	3%
2000	4,459	185	3,383	0.139	76%	91	624	1.943	21%	13	143	0.491	3%
2001	4,418	150	3,679	0.082	83%	48	675	0.911	15%	18	141	0.817	3%
2002	4,295	138	3,318	0.151	78%	79	897	0.880	21%	23	267	1.815	6%
2003	3,273	121	2,859	0.141	87%	34	243	0.944	7%	17	180	2.397	5%
2004	2,908	87	1,991	0.113	75%	51	632	1.357	24%	3	34	2.537	1%
2005	3,143	134	2,749	0.222	87%	36	373	0.981	12%	13	248	0.275	8%
2006	2,329	103	1,948	0.272	84%	25	264	1.770	11%	16	156	4.450	7%
90-06 Avg.	4,532	195	3,883	0.193	81%	63	627	1.111	13%	29	219	1.212	5%

*CPUE represents observed catch divided by observed angling effort in rod-hours directed at that particular species.

4. INDEX FISHING PROJECTS

4.1 Partnership Index Fishing: Gillnetting

Partnership index gillnetting is a cooperative fisheries assessment program with the Ontario Commercial Fisheries' Association (OCFA). It is funded primarily through the New Business Relationship (NBR) between the province of Ontario and the OCFA. At conception, the program relied on volunteer participation from the fishing industry to complete the field component up until 1997. This program has monitored abundance, age structure, size and species composition throughout Lake Erie since 1989. This community index is applied in catch-at-age analyses for estimating population abundance of yellow perch and walleye.

The lake-wide survey was partitioned spatially into projects defined as the west, west-central, east-central, Pennsylvania Ridge, and eastern basins. As a component of the annual survey, 20 sites east of 70° 40' (formerly referred to as the *walleye cap area*) have been assessed since 2000. Index nets were fished at 140 locations across Lake Erie during the fall in 2006. This year, the owner equipped the fishing vessel with a GPS tracking device allowing real time position monitoring on the internet. The path of the vessel is plotted along with target sites for 2006 (Figure 4.1.1). For the fourth year, gill nets 110 feet in length with a mesh size of 4.75" (121 mm), 50 meshes deep were fished canned (suspended) at the same depths as our canned index nets to examine the effectiveness of index gear catching suspended walleye. These deep nets were approximately 17 feet deep with 3.1 times the area of our 50' index nets. Mean walleye catch and size distributions in 2006 are presented for index and auxiliary gear. Again in 2006, additional 1 fathom canned index nets were fished at 12 random sites in both the west-central and east-central basin surveys. These shallower gangs were intended to provide additional information describing the vertical distribution of walleye in the central basin.

The index gill nets consisted of 1,250 feet (0.38 km) panels of graded monofilament mesh including 1.25", 1.5", 1.75", 2.0", 2.25", 2.5", 2.75", 3.0", 3.5", 4.0", 4.5", 5.0", 5.5", 6.0" (range is 32 mm to 152 mm). Mesh sizes 2 inches (57 mm) and greater were composed of two 50 foot panels, and those less than 2 inches were single panels 50 feet (15.25 m) in length. Sets were approximately 24 hours in duration.

Nets were set at randomly selected locations among depth strata. The number of sites within each stratum was proportional to area. Depth strata for the western basin included 0 to 10 m and greater than 10 m. In the west-central and east-central basins, depths were grouped as 0 to 15 m, 15 to 20 m, and greater than 20 m. The eastern basin, east walleye cap area and Pennsylvania Ridge depth strata were partitioned as 0-15 m, 15 to 30 m and depths greater than 30 m.

At each site, nets were fished on the bottom and suspended (canned) at depths determined partly by the depth stratum and by random selection. In the western basin, nets were canned at 1 fathom (1.8 m). In the west-central and east-central basins, gill nets were canned at 2.7 fathoms (5 m) or 6.0 fathoms (11 m) or 9.2 fathoms (17 m). The west and central basins were fished when the water temperature was uniform throughout the water column. Twelve additional gangs of 1 fathom index nets were fished in addition to the standard complement of canned nets in the west-central and east-central basin, as described above.

In the deeper study areas (Pennsylvania Ridge, east and east cap monitoring area), standard gear and additional canned nets were fished in order to sample the water column more effectively during thermal stratification. The gear was fished in the standard manner with gill nets set on bottom and canned at 2 fathoms (3.7 m), 4 fathoms (7.3 m), or 8 fathoms (14.6 m) at all sites. At deep locations, an additional gang of nets was set within the thermocline.

All walleye with a total length of 38 cm or larger were scanned for passive integrated transponder (PIT) tags using a Biomark hoop reader as bags of fish were removed from totes. All fish were identified, counted and weighed "in bulk" by species and mesh size. Biological sampling for selected species included determination of length, weight, sex, maturity, gonad weight and age. In addition to standard scale sample collection, sagittal otoliths were collected from yellow perch, walleye, burbot and whitefish. Otoliths were collected from yellow perch 20 cm and greater in total length while scales were used to age smaller yellow perch. All otoliths were collected from walleye 38 cm and larger, plus one out of every four per mesh for smaller walleye. Otoliths were extracted from all whitefish and burbot. Results from surveys

include total catches, mean species biomass and age specific information for yellow perch, walleye and lake whitefish. Catch rates presented have not been adjusted for selectivity bias associated with the gang configuration of mesh sizes.

Index fishing began August 26, 2006 in the Pennsylvania Ridge Area, progressing eastward until eastern Lake Erie was completed. Fishing began in the western basin immediately thereafter, on September 9, 2006. Central basin surveys began on October 1st following fall turnover. The last lift occurred in the east-central basin on October 27th.

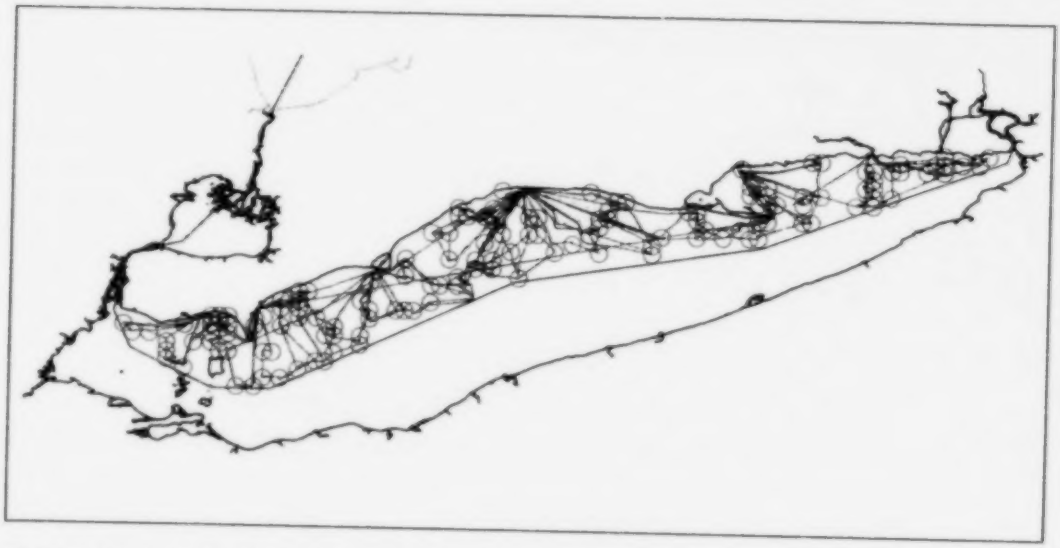

Figure 4.1.1 Lake Erie partnership index gill netting locations (circles) fished in 2006. Dotted lines represent the path of the fishing vessel recorded by GPS.

Results

Fish Community

Catch by species over the time series is presented for the west, west-central, east-central, Pennsylvania Ridge, east and former eastern walleye cap areas in Tables 4.1.1 to 4.1.6 respectively. Catches were standardized to an equal number of gangs as specified in Tables 4.1.1 to 4.1.5. The reference number of gangs in this report reflects the target number of gangs since targets have been usually met since the index fishing tender process began since 1999. The number of thermocline samples differs each year in Table 4.1.6 due to annual random selection of sites, variable thermocline depths and lack of some temperature profiles in 2006 as the YSI logger cable was malfunctioning. Sustained north-east winds during the eastern / cap area surveys lead to upwelling, with the thermocline advancing shallower and northward. The distributions of warm and cool water species above and cold water species below the metalimnion were likely altered by this event.

Since 2003, alewife catches remained low in western and central Lake Erie, but increased eastward, where catches were above average in 2006 (Table 4.1.1 – 4.1.6). Gizzard shad abundance was above average western and eastern Lake Erie in 2006, but levels were moderate in the central basin surveys. White perch catches in the west half of the lake in 2006 were the highest in the time series (1990-2006) and were well above average throughout the rest of the lake. White bass abundance was also above average throughout Lake Erie in 2006, attaining peak levels of abundance in the eastern half of the lake. Smallmouth bass abundance in the eastern basin was above average in contrast to the western basin, although both basins produced young-of-the year. Round gobies were absent in the 2006 west basin survey but were more abundant eastward, attaining the time series maximum in the Pennsylvania Ridge survey (Table 4.1.4). The greater abundance of gobies in eastern surveys likely reflects larger size

distributions and greater survival in the east. Freshwater drum abundance in 2006 did not deviate far from basin averages with Pennsylvania Ridge and the east Cap Area indices being exceptions with lower catch rates. Burbot catches were relatively low in 2006, except for the eastern cap area where catches were average (Table 4.1.6). Lake trout indices were at or above average in 2006 surveys.

Biomass trends for major species are presented for the west, west-central, east-central and east basins in Figure 4.1.2. Species with average biomass equaling at least 5% of basin averages are represented individually. Remaining species are graphed in the "other" category. The productivity gradient and associated species composition decreases from west to east. In 2006, the west basin biomass was dominated by gizzard shad, walleye, yellow perch, white perch and freshwater drum respectively. The remaining species comprised only 8 % of the biomass.

In the central basin surveys, yellow perch, white perch, freshwater drum, walleye and gizzard shad represented the majority of the biomass respectively (Figure 4.1.2). Species composition according to biomass was very similar in the western and eastern portions of the central basin. Other species contributed 6% and 10% to total fish biomass in the west-central and east-central basin surveys respectively.

The species composition of eastern Lake Erie is more diverse with warm, cool and cold water fish communities. Although species diversity is greater in the eastern basin, nine species represented 92% of the fish biomass in 2006. Yellow perch, gizzard shad, freshwater drum, white perch, walleye, alewife, smallmouth bass, burbot and common white suckers contributed most to survey catches by weight. In the east basin survey, the 2006 lake trout index was average, representing 3.4% of the fish biomass. Lake whitefish comprised 1.4% of the fish biomass in eastern Lake Erie in 2006.

Yellow Perch

In 2006, yellow perch index catch rates declined from in 2005 in west and central basin surveys (Figure 4.1.3). The 2003 cohort (Age 3) dominated indices throughout the lake, with the exception of the east cap area where yearlings (2005 year class) represented the greatest fraction of yellow perch caught. In Pennsylvania Ridge and east basin surveys, catches of age 3 yellow perch in 2006 exceeded catches of the 2003 cohort at age 2 the previous year. Catch rates of 5-year-old yellow perch suggest greater survival occurred along Pennsylvania Ridge and in the eastern basin, although few age 5 yellow perch were observed in the east cap area. East yellow perch indices had a lower mean age than the rest of the lake due to a strong presence of yearling fish (Figure 4.1.3, 4.1.4). Ages were determined using scales and sagittal otoliths (cracked and whole) for yellow perch in bottom nets 20 cm and larger in total length. Yellow perch sex ratios remained quite stable over the time series to 2006, with females generally representing more than 50% of yellow perch ages 2 and older (Figure 4.1.5). Mean total length (mm) and weight (g) for each sex was plotted by basin for yellow perch collected in 2006 with 95% confidence limits to compare with the time series average up to 2005 (Figure 4.1.6). In 2006, three-year-old yellow perch appeared close to or above average in size in the west and east basin surveys, but were smaller than average size (length and weight) in central basin surveys (Figure 4.1.6).

Walleye

In 2006, walleye abundance declined as the strong 2003 year class grew older in the absence of strong subsequent recruitment (Figure 4.1.7). In the west and to a lesser extent, other basins, yearlings (2005 year class) represented a significant fraction of the walleye caught. Catches were highest from west to east. Age 3 indices were the highest in the time series for all basins except in the east-central basin, where the 2003 year class catch rate was still comparable to the strong 1986 cohort. Young-of-the-year were present only in the east basin survey. Mean age of walleye in 2006 increased from west to east due to greater yearling abundance to the west and more older walleye in the east (Figure 4.1.8). While the proportion of age 2 and older females varied annually, the fraction was near or greater than 50% in all basins surveyed in 2006 (Figure 4.1.9). Mean total length (mm) and weight (g) with 95% confidence limits for each sex was plotted by basin for walleye collected in 2006. The average size at age for each sex across years pooled to 2005 was plotted for reference (Figure 4.1.10). The average time series is based mostly on ages determined using scales whereas 2006 age data are based on otoliths for larger walleye. Underestimation of age in the "average" series may create a biased signal implying a reduction in size at age.

Walleye index catch rates in all basins were higher in canned nets compared to bottom gill nets in 2006 (Figure 4.1.11). Standard index canned net catch rates were about the same (10.4 walleye/gang) as auxilliary 1 fathom canned nets (10.0 walleye/gang) in the west-central basin survey. In contrast, 1 fathom nets (9.6 walleye/gang) caught more walleye than standard canned nets (6.9 walleye/gang) in the east-central basin. Catch rates in commercial style 50 mesh 4 ¾" nets were higher in the west-central (4.4 walleye/gang) and east-central basin (5.0 walleye/gang) surveys compared to the west (1.1 walleye/gang) and eastern basin (1.4 walleye/gang) surveys. Modal total lengths of walleye caught in this gear ranged from 49 cm (west) to 58 cm (east) (Figure 4.1.11).

Lake Whitefish

Lake whitefish catch rates were generally above average, with the exception of the Pennsylvania Ridge survey (Figure 4.1.12). The 2003 year class dominated catches in the central and eastern basins. Only yearlings were present in the Pennsylvania Ridge survey. The 2001 year class remained significant in 2006 survey catches. This year class was appeared to be quite strong according to yearling indices, but subsequent surveys suggest it is weaker than the 2003 year class (Figure 4.1.13). Mean lengths and weights at age with 95% confidence limits for each sex are presented in Figure 4.1.14. In 2006, whitefish were aged using sectioned otoliths embedded in epoxy on slides and scales rolled on acetate slides. Otoliths were aged using reflected light viewed through a stereoscope. Divergence of ages occurred approximately at otoliths age 8 or 55 cm total length (Figure 4.1.15).

Table 4.1.1 Total numbers of each species caught during Western Basin Partnership Index Fishing, Lake Erie, 1990-2006. Numbers are standardized to 44 gangs. Average catch from 1990-2006 is presented for each species.

Species	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Average
Silver Lamprey	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
Lake Sturgeon	0	0	1	1	1	1	2	0	1	0	3	0	2	5	8	0	1	2
Longnose Gar	0	0	1	0	1	0	0	0	1	7	4	1	0	0	0	0	0	1
Alewife	87	2,272	309	196	349	1,384	105	54	1,159	1,239	1,939	154	721	0	103	2	80	597
Gizzard Shad	718	7,729	2,856	4,194	5,844	6,624	1,118	1,415	2,873	8,542	2,838	4,056	8,561	7,043	5,294	14,185	8,329	5,425
Chinook Salmon	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rainbow Trout	3	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Brown Trout	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lake Whitefish	10	1	0	1	0	5	0	0	1	0	2	0	0	0	0	0	0	1
Rainbow Smelt	8	1	0	37	0	1	0	1	1	0	1	95	1	0	1	1	2	9
Muskellunge	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Quillback	0	1	6	3	5	4	12	5	4	12	7	34	24	25	13	12	9	10
White Sucker	59	43	130	46	94	46	73	71	30	39	42	101	90	77	127	133	69	75
Silver Redhorse	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0
Golden Redhorse	0	0	0	0	0	0	0	19	0	1	6	0	0	0	0	0	0	2
Shorthead Redhorse	1	4	22	7	15	13	14	50	17	19	23	31	6	26	33	15	10	18
Redhorse sp.	0	0	0	0	0	0	0	0	1	0	0	0	19	0	0	0	0	1
Goldfish	0	0	0	0	0	1	0	0	0	2	4	0	0	0	0	2	0	1
Common Carp	25	29	4	7	3	2	7	3	1	3	16	22	6	1	4	1	8	8
Silver Chub	25	35	147	320	59	96	89	73	67	185	133	61	48	44	84	21	38	90
Hornyhead Chub	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Emerald Shiner	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spottail Shiner	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Brown Bullhead	0	0	1	0	0	0	0	0	0	0	3	1	1	0	0	2	0	0
Channel Catfish	62	112	45	83	48	55	59	37	35	62	38	86	89	139	97	244	167	86
Stonecat	1	1	0	1	0	0	1	0	2	2	0	0	0	0	0	0	0	0
Tadpole Madtom	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brindled Madtom	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Burbot	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Trout-perch	0	0	0	0	0	0	0	1	4	0	1	3	0	1	0	0	0	1
White Perch	462	713	3,155	2,223	1,194	971	972	382	309	1,795	2,053	1,710	1,195	3,090	2,998	3,613	5,360	1,894
White Bass	158	110	65	67	288	89	135	271	102	174	225	308	460	367	218	285	277	212
Rock Bass	6	27	20	1	18	5	12	9	8	5	8	23	7	13	8	3	5	10
Pumpkinseed	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0	0
Smallmouth Bass	41	83	149	231	231	108	248	162	166	93	116	12	59	12	17	2	32	104
Black Crappie	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0
Yellow Perch	822	1,324	2,737	2,212	3,291	4,612	5,102	3,468	3,292	4,415	3,445	10,701	5,774	5,566	7,396	6,843	3,616	4,389
Walleye	602	1,648	1,356	1,899	1,002	1,503	821	1,148	648	769	1,143	691	714	1,297	1,408	1,365	914	1,113
Round Goby	0	0	0	0	0	0	0	0	5	3	5	4	4	4	10	2	0	2
Freshwater Drum	460	378	377	405	396	308	459	302	238	572	445	873	864	536	578	1,196	433	519
Total	3,551	14,517	11,383	11,936	12,842	15,829	9,231	7,471	8,965	17,939	12,505	18,968	18,646	18,249	18,407	27,927	19,354	14,572
Number of Sites	21	22	21	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
Number of Gangs	40	38	40	42	44	44	44	44	44	44	44	44	44	44	44	44	44	43

Note: Values are continually corrected for errors and may be different from previous reports.

Table 4.1.2 Total numbers of each species caught during West-Central Basin Partnership Index Fishing , Lake Erie, 1990-2006. Numbers are standardized to 72 gangs. Average catch from 1990-2006 presented for each species. Only standard gear was included.

Species	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Average
Lake Sturgeon	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
Alewife	3,113	12,712	1,578	1,746	2,821	3,437	785	27	2,616	5,532	3,082	432	7,928	0	1	0	64	2,698
Gizzard Shad	1,011	4,481	1,619	2,575	1,555	2,381	1,814	812	1,873	4,506	6,522	2,496	13,739	2,552	3,053	4,985	2,010	3,411
Coho Salmon	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Chinook Salmon	0	4	0	1	0	3	0	3	0	0	0	0	1	0	0	0	0	1
Rainbow Trout	2	0	1	0	0	2	0	0	0	3	1	0	3	2	0	0	3	1
Lake Whitefish	5	0	5	4	10	29	15	62	31	47	49	11	17	36	15	82	40	27
Rainbow Smelt	47	386	230	155	332	1,382	435	331	89	336	124	33	85	49	71	251	102	261
Quillback	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0	1	0
White Sucker	71	79	80	9	25	26	25	29	42	19	63	15	29	57	98	60	67	47
Spotted Sucker	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Silver Redhorse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
Golden Redhorse	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Shorthead Redhorse	1	6	2	0	0	1	1	0	0	4	0	1	0	3	2	0	2	1
Goldfish	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0
Common Carp	3	0	0	0	0	2	1	1	0	0	2	0	2	1	0	0	3	1
Silver Chub	2	5	15	0	0	1	0	0	0	2	0	2	1	0	0	3	1	2
Emerald Shiner	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0
Spottail Shiner	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Brown Bullhead	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Channel Catfish	17	28	25	15	6	25	27	5	6	3	13	1	9	7	7	11	49	15
Stonecat	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Burbot	3	7	5	3	5	3	2	8	9	0	2	1	0	4	0	0	0	3
Trout-perch	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
White Perch	3,898	2,055	5,184	2,881	1,141	1,221	552	865	882	2,177	3,431	1,270	2,896	2,978	6,473	6,438	9,077	3,142
White Bass	212	184	70	26	347	232	304	686	287	296	481	125	248	217	383	582	654	314
Rock Bass	0	1	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0
Pumpkinseed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Smallmouth Bass	0	3	2	0	1	1	1	1	0	0	1	0	0	1	0	0	0	1
Largemouth Bass	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Yellow Perch	1,810	2,315	2,105	1,165	2,020	2,260	3,813	5,002	3,070	5,034	11,823	9,604	10,941	12,950	24,743	13,156	11,161	7,234
Walleye	479	591	740	483	282	783	527	486	183	98	462	56	197	317	1,765	1,022	629	535
Round Goby	0	0	0	0	0	0	0	1	8	37	19	13	10	24	15	9	17	9
Freshwater Drum	3,306	1,395	2,696	1,330	1,740	1,192	1,441	1,534	840	1,231	1,752	809	3,249	1,883	1,736	2,076	2,281	1,794
Total	13,981	24,253	14,357	10,393	10,286	12,983	9,744	9,853	9,940	19,330	27,834	14,867	39,359	21,084	38,368	28,676	26,161	19,498
Number of Sites	34	36	36	36	36	36	36	36	28	36	36	36	36	36	36	36	36	35
Number of Gangs	68	72	72	72	72	72	72	72	56	72	72	72	72	72	72	72	72	71

Note: Values are continually corrected for errors and may be different from previous reports.

Table 4.1.3 Total numbers of each species caught during East-Central Basin Partnership Index Fishing, Lake Erie, 1989-2006. Numbers are standardized to an effort of 72 gangs. Average catch from 1989-2006 presented for each species. Study was not done in 1996. Only standard gear was included.

Species	1989	1990	1991	1992	1993	1994	1995	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Average
Lake Sturgeon	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Alewife	677	3,567	12,878	1,894	684	578	1,556	143	1,350	7,108	5,033	793	8,380	4	4	48	153	2,638
Gizzard Shad	860	285	2,633	522	1,003	637	1,971	426	1,250	3,197	2,281	462	5,753	127	351	1,822	892	1,439
Coho Salmon	1	2	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
Chinook Salmon	0	0	0	0	0	2	0	9	1	0	0	0	1	0	0	0	0	1
Rainbow Trout	3	0	1	2	1	0	2	2	1	1	0	2	0	1	0	0	1	1
Lake Trout	1	0	1	2	0	2	0	0	1	0	0	0	0	0	0	0	1	1
Lake Whitefish	5	2	2	4	41	21	24	142	46	33	21	11	21	27	14	43	36	29
Rainbow Smelt	320	118	525	322	375	324	1,418	309	1,329	589	248	1,447	920	307	835	423	438	603
Northern Pike	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Quillback	0	0	0	0	24	9	3	0	1	0	5	0	0	0	2	2	0	3
White Sucker	72	52	63	72	129	78	126	46	60	56	71	30	135	13	60	78	83	72
Silver Redhorse	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Golden Redhorse	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
Shorthead Redhorse	0	15	0	4	12	0	2	2	1	2	18	0	1	0	0	0	1	3
Goldfish	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Lake Chub	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Common Carp	0	0	0	1	5	0	0	0	1	0	7	4	0	0	0	1	0	1
Silver Chub	0	0	0	1	0	0	0	0	24	14	18	7	2	0	1	4	2	4
Emerald Shiner	0	0	0	0	15	2	5	0	0	0	0	0	0	2	2	0	1	2
Common Shiner	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
Spottail Shiner	0	2	1	1	3	0	0	2	0	18	0	0	10	0	2	0	2	2
Notropis sp.	9	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Channel Catfish	12	3	11	10	43	19	12	7	6	6	26	9	23	2	17	8	11	13
Stonecat	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0
Tadpole Madtom	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Burbot	31	13	9	19	20	19	14	25	36	15	2	12	9	0	1	3	2	14
Trout-perch	0	7	1	19	12	4	0	2	2	1	0	15	4	12	7	1	3	5
White Perch	7,621	4,449	1,929	3,480	809	392	203	268	179	529	1,086	1,225	4,046	1,967	1,777	6,905	3,674	2,385
White Bass	636	88	170	91	67	203	176	734	167	419	316	101	261	276	232	329	765	296
Rock Bass	0	0	0	0	3	0	3	0	0	0	0	0	0	1	0	0	0	0
Bluegill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Smallmouth Bass	0	0	0	0	0	0	8	0	6	2	0	0	1	0	0	1	0	1
Yellow Perch	3,332	1,121	1,174	1,295	736	2,179	1,944	4,681	2,347	7,149	9,229	4,613	8,458	5,744	6,956	8,578	8,132	4,569
Walleye	465	118	207	276	367	366	237	82	70	17	29	27	99	68	639	473	310	226
Round Goby	0	0	0	0	0	0	0	0	2	40	61	34	157	76	70	148	39	37
Freshwater Drum	3,599	2,443	1,876	2,380	1,323	1,184	548	956	669	985	1,304	1,304	2,399	1,077	1,890	1,123	1,227	1,546
Total	17,645	12,296	21,482	10,398	5,674	6,023	8,247	7,836	7,549	20,181	19,758	10,096	30,682	9,706	12,860	19,992	15,774	13,894
Number of Sites	27	22	31	30	29	17	24	33	32	36	36	36	36	36	36	36	36	31
Number of Gangs	54	44	62	60	58	34	48	66	64	72	72	72	72	72	72	72	72	63

Note: Values are continually corrected for errors and may be different from previous reports.

Table 4.1.4 Total numbers of each species caught during Pennsylvania Ridge Partnership Index Fishing , Lake Erie, 1991-2006. Average catch from 1991-2006 presented for each species. Study was not done in 1996, 1997. Only standard canned nets are included (no thermocline gangs).

Species	1991	1992	1993	1994	1995	1998	1999	2000	2001	2002	2003	2004	2005	2006	Average
Longnose Gar	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Alewife	740	1,530	0	16	133	605	69	2,284	42	1,076	0	0	0	489	499
Gizzard Shad	16	20	36	531	95	96	101	515	141	374	15	17	2	163	152
Pink Salmon	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Coho Salmon	2	0	2	0	0	0	1	0	2	0	1	0	0	0	1
Chinook Salmon	0	0	0	1	0	0	2	0	0	1	0	0	0	0	0
Rainbow Trout	1	0	2	0	1	2	5	3	8	17	7	13	35	8	7
Lake Trout	1	2	8	5	9	3	2	0	5	4	1	10	3	4	4
Lake Whitefish	13	17	33	15	53	59	1	1	14	1	9	3	12	1	17
Rainbow Smelt	179	22	38	38	60	40	14	8	111	21	54	80	9	16	49
Quillback	0	0	0	0	0	0	1	2	6	1	0	2	0	2	1
White Sucker	18	20	12	15	15	62	11	9	65	10	24	16	13	19	22
Silver Redhorse	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0
Golden Redhorse	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Shorthead Redhorse	0	3	3	1	2	24	2	2	18	2	3	9	0	3	5
Redhorse sp.	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Common Carp	0	0	0	0	0	0	0	3	1	0	0	1	0	0	0
Silver Chub	0	0	0	0	0	0	0	0	3	0	8	0	0	1	1
Emerald Shiner	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
Spottail Shiner	0	3	0	0	0	0	0	0	0	0	0	3	0	1	1
Channel Catfish	0	4	2	3	0	4	2	1	5	2	0	1	0	1	2
Stonecat	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Burbot	8	8	8	12	15	71	59	36	74	49	76	49	10	10	35
Troutperch	0	0	0	0	0	0	0	1	4	2	1	0	0	0	1
White Perch	446	195	93	34	46	70	56	68	142	104	129	34	39	186	117
White Bass	55	63	7	4	84	35	20	36	26	5	6	5	3	103	32
Rock Bass	1	1	0	1	1	13	7	2	9	1	0	0	0	2	3
Smallmouth Bass	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0
Black Crappie	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Yellow Perch	714	20	190	104	483	1,743	1,654	3,752	1,881	3,008	1,115	1,310	2,558	4,710	1,660
Walleye	13	34	23	35	47	19	12	7	13	7	14	9	102	30	26
Round Goby	0	0	0	0	0	0	2	19	30	38	37	4	9	146	20
Freshwater Drum	285	118	43	142	88	103	41	62	74	56	39	15	9	21	78
Total	2,493	2,060	501	957	1,134	2,953	2,062	6,813	2,679	4,782	1,540	1,581	2,804	5,917	2,734
Number of Sites	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Number of Gangs	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18

Note: Values are continually corrected for errors and may be different from previous reports.

Table 4.1.5 Total numbers for each species caught during Eastern Basin Partnership Index Fishing surveys, Lake Erie, 1989-2006. Numbers are standardized to an effort of 60 gangs. Average catch from 1989-2006 presented for each species. Study was not done in 1996, 1997. Low sample size in 1995 limits value of information. Only standard gear included. Thermocline gangs and 2 m above thermocline sets were excluded.

Species	1989	1990	1991	1992	1993	1994	1995	1998	1999	2000	2001	2002	2003	2004	2005	2006	Average
Longnose Gar	1	-	-	-	-	-	-	1	2	-	-	-	1	-	-	-	0
Alewife	2,257	111	1,628	1,248	193	118	1,046	1,697	599	2,296	29	2,597	2	12	14	1,214	941
Gizzard Shad	325	75	73	18	76	52	266	382	335	514	190	1,001	99	14	714	845	311
Pink Salmon	-	-	4	2	-	-	-	-	-	-	-	-	-	1	-	-	0
Coho Salmon	-	-	4	2	2	-	-	-	1	-	2	1	-	-	1	1	1
Chinook Salmon	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	-	0
Rainbow Trout	1	3	5	8	-	2	4	6	2	-	4	6	6	1	15	1	4
Brown Trout	1	-	-	-	-	-	-	3	-	-	-	21	2	2	1	-	2
Lake Trout	15	5	8	3	26	24	4	11	10	18	9	15	30	8	18	24	14
Lake Whitefish	15	43	35	14	-	10	8	133	6	-	2	18	2	2	3	45	21
Cisco	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Rainbow Smelt	669	577	94	26	2	81	79	5	13	32	58	223	61	220	128	88	147
Northern Pike	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Mooneye	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	0
Quillback	4	-	-	-	-	5	-	-	2	4	3	-	1	-	-	4	1
White Sucker	260	168	88	57	148	63	26	66	116	107	122	152	54	26	35	107	100
Silver Redhorse	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	0
Golden Redhorse	-	-	-	-	-	-	-	-	1	6	4	-	-	-	-	-	1
Shorthead Redhorse	40	99	16	44	86	17	8	21	18	47	39	5	20	6	1	4	29
Redhorse sp.	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	0
Common Carp	22	3	-	2	-	-	4	-	1	-	1	-	-	-	-	-	2
Silver Chub	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	0
Brown Bullhead	-	1	-	-	-	2	-	-	2	-	1	-	-	-	-	-	0
Channel Catfish	5	3	-	2	2	-	4	7	5	7	28	3	2	7	3	6	5
Stonecat	12	3	6	3	7	-	-	-	11	2	3	-	-	-	-	-	3
Burbot	5	11	20	11	29	49	53	238	185	212	108	143	171	113	101	31	92
White Perch	3,339	1,421	481	129	104	36	56	22	49	35	76	181	19	10	45	1,117	445
White Bass	174	28	187	23	15	10	64	34	24	61	19	45	8	6	23	172	56
Rock Bass	209	76	30	96	152	122	71	56	299	480	109	11	20	43	7	14	112
Pumpkinseed	-	1	-	-	11	-	-	-	-	-	1	-	-	-	-	-	1
Bluegill	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	0
Smallmouth Bass	137	333	64	239	300	370	270	284	242	890	341	111	156	195	150	413	281
Largemouth Bass	-	-	-	-	-	-	-	-	-	1	-	-	3	-	-	-	0
Black Crappie	6	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	0
Yellow Perch	1,180	464	382	228	135	47	146	211	679	1,306	3,160	1,321	3,608	1,983	1,643	4,650	1,321
Walleye	140	79	31	57	63	46	34	29	41	62	41	42	31	38	345	109	74
Round Goby	-	-	-	-	-	-	-	-	-	9	19	178	93	54	23	55	27
Freshwater Drum	1,063	335	178	207	404	172	266	374	142	145	303	151	183	257	319	343	303
Total	9,879	3,840	3,332	2,415	1,753	1,225	2,408	3,580	2,785	6,233	4,674	6,229	4,575	2,999	3,590	9,243	4,298
Number of Sites	27	26	26	20	19	19	8	30	30	29	30	30	30	30	30	30	26
Number of Gangs	49	45	52	40	37	38	16	60	60	58	60	60	60	60	60	60	51

Note: Values are continually corrected for errors and may be different from previous reports.

Table 4.1.6 Total numbers of each species caught during the Partnership Walleye Cap Area Survey, Eastern Lake Erie, 2000-2006. Thermocline samples were included. Numbers of sites and gangs (samples) are presented. Average catch 2000-2006 presented. Few thermocline gangs set in 2005 due to inoperable temperature logger.

Species	2000	2001	2002	2003	2004	2005	2006	Average
Alewife	1331	43	1,655	3	10	14	65	446
Gizzard Shad	48	231	164	36	4	290	38	116
Coho Salmon	1	0	5	0	0	1	0	1
Chinook Salmon	0	0	1	0	0	1	0	0
Rainbow Trout	9	13	52	20	4	16	1	17
Brown Trout	0	0	2	0	1	2	0	1
Lake Trout	12	35	11	15	15	11	35	19
Lake Whitefish	1	1	1	9	1	12	80	15
Rainbow Smelt	54	19	11	13	158	28	54	48
Quillback	5	1	1	0	0	0	0	1
White Sucker	98	68	34	35	32	67	93	61
Golden Redhorse	10	1	0	0	0	0	0	2
Shorthead Redhorse	42	20	13	13	2	2	1	13
Common Carp	0	1	0	0	0	0	0	0
Channel Catfish	9	21	3	6	9	8	1	8
Stonecat	0	1	0	0	0	0	0	0
Burbot	119	56	77	119	29	64	76	77
White Perch	38	115	57	24	7	72	444	108
White Bass	32	50	31	16	10	36	90	38
Rock Bass	359	106	18	5	11	22	3	75
Pumpkinseed	1	0	0	0	0	0	0	0
Smallmouth Bass	556	304	127	148	161	256	31	226
Largemouth Bass	0	0	0	0	1	0	0	0
Yellow Perch	3137	1,555	582	2,160	396	1,672	2,654	1,737
Walleye	76	99	90	76	119	515	153	161
Round Goby	1	1	13	18	39	9	13	13
Freshwater Drum	154	249	113	138	170	117	12	136
Total	6,093	2,990	3,061	2,852	1,179	3,217	3,844	3,319
Number of Sites	20	20	20	20	20	20	20	20
Thermocline Gangs	10	12	17	15	12	3	9	11
Number of Gangs	50	52	57	55	52	43	49	51

Note: Values are continually corrected for errors and may be different from previous reports.

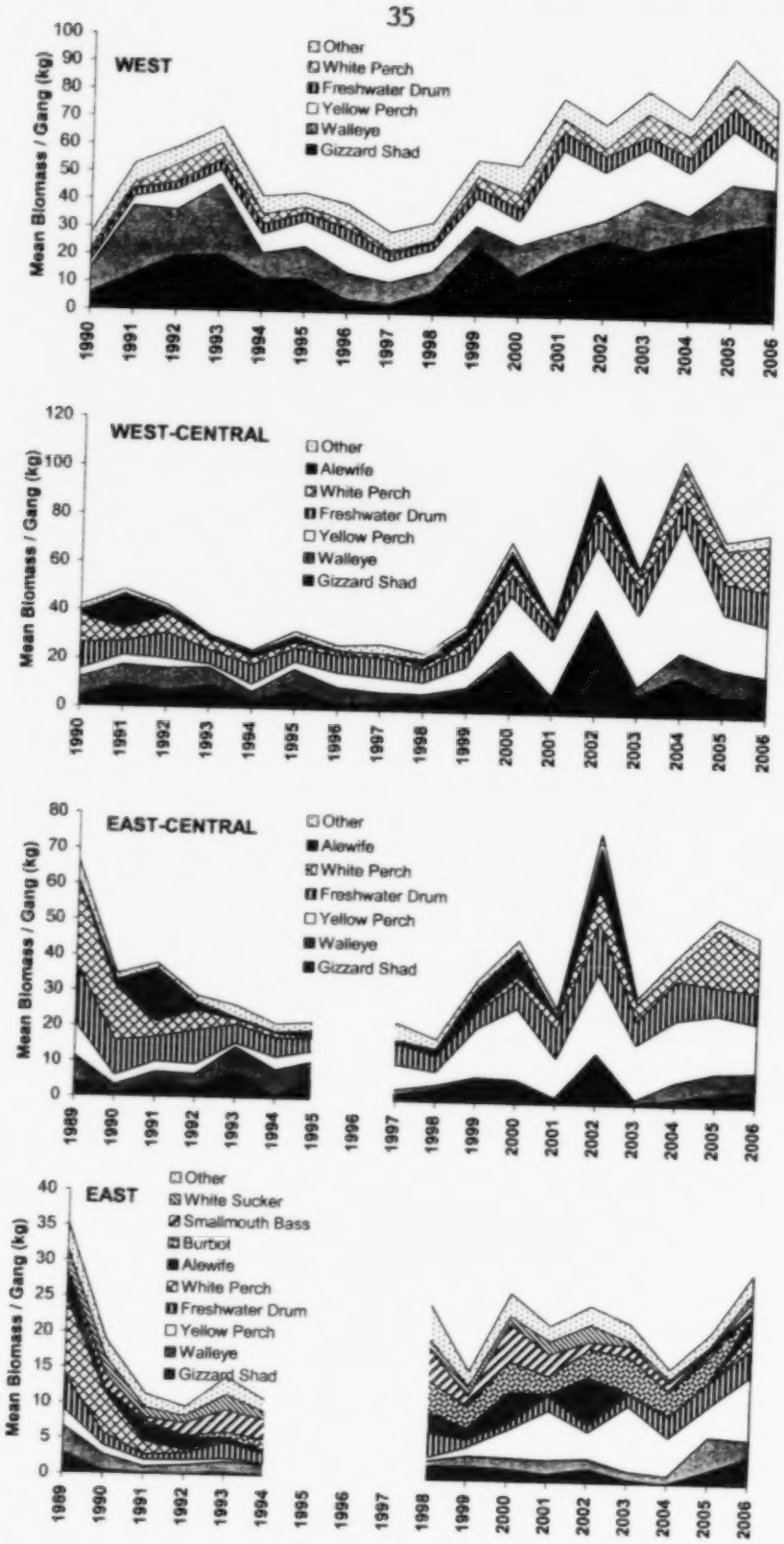

Figure 4.1.2 Mean species biomass (kg / gang) by basin, Partnership Index Fishing, 1989-2006. Species with an average biomass representing less than 5% of the average of all species combined were included in "Other" group. Thermocline gangs (1989, 1990, 1999-2006) were included for the east basin. Studies were not done in the east-central basin in 1996 or in the east basin from 1995-1997. Axes differ between basins. Effort was standardized across mesh sizes.

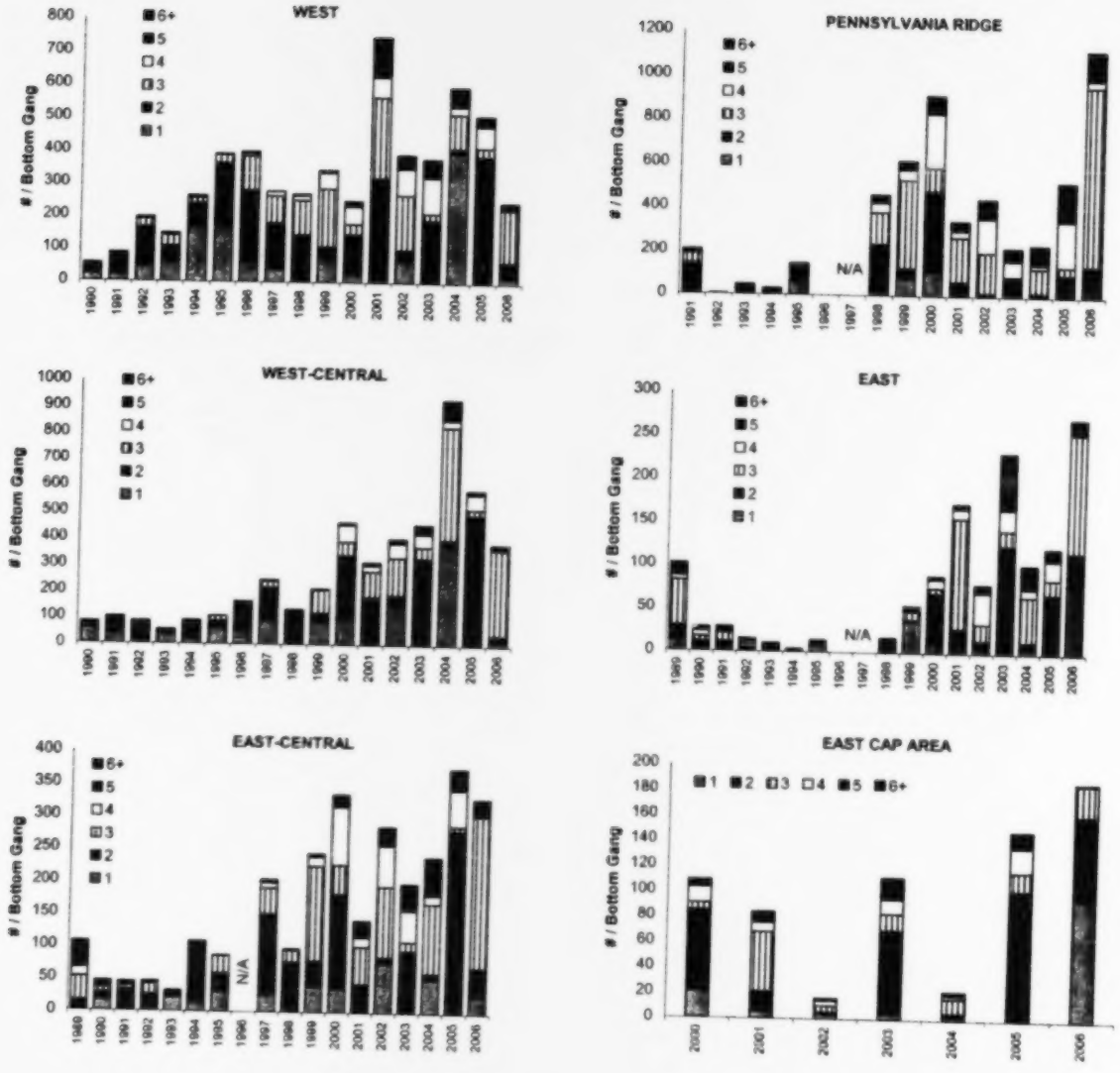

Figure 4.1.3 Yellow perch catch at age (number) per bottom gang of Partnership index gill nets, by basin. Time frames and axes differ among basins. Absent bars indicate when studies were not done. Ages 6 and older pooled. East basin, eastern walleye cap area and Pennsylvania Ridge analyses include depths 30 m or less. East cap area survey and east basin survey are not mutually exclusive. 1995 east low sample size.

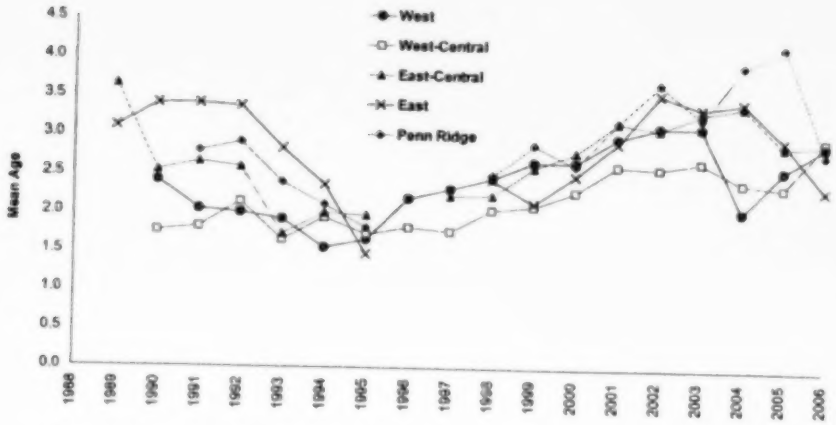

Figure 4.1.4 Mean age of yellow perch caught in Partnership index gill nets by basin, 1989-2006. All age groups included in calculations. Ages based on scales & otoliths in 2005, 2006.

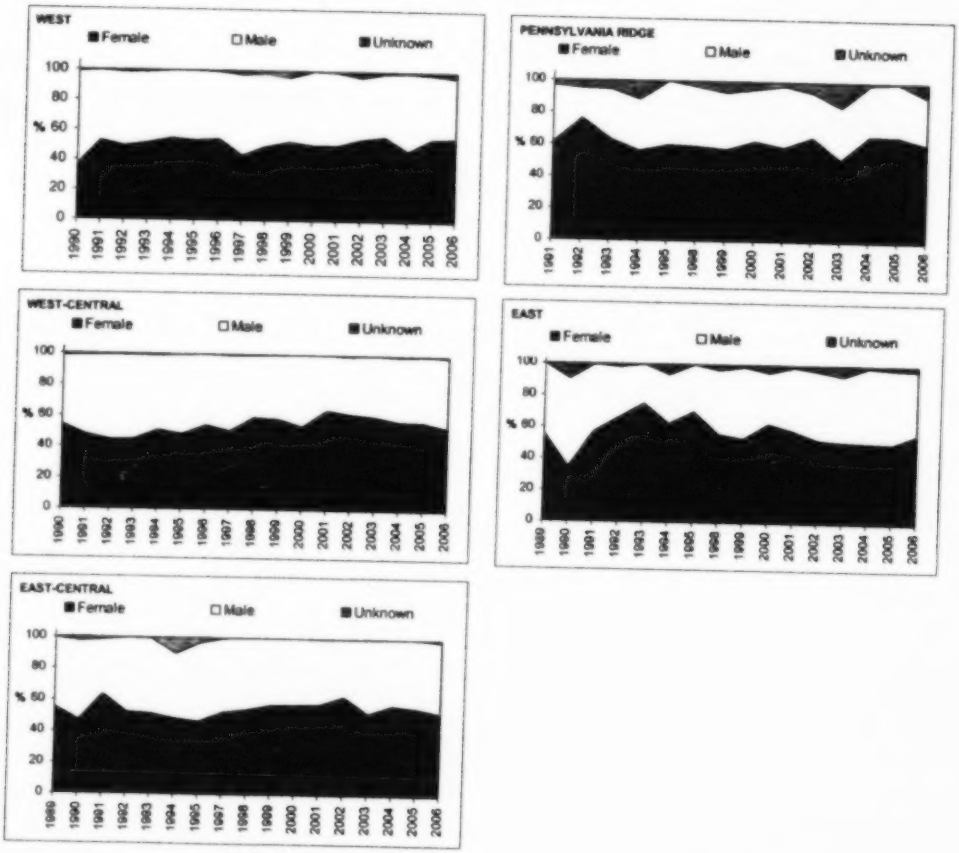

Figure 4.1.5 Proportion of yellow perch ages 2 and older represented by each sex caught in fall Partnership index gill netting,1989-2006. Note absent years in east-central, Pennsylvania Ridge, and east basin time series.

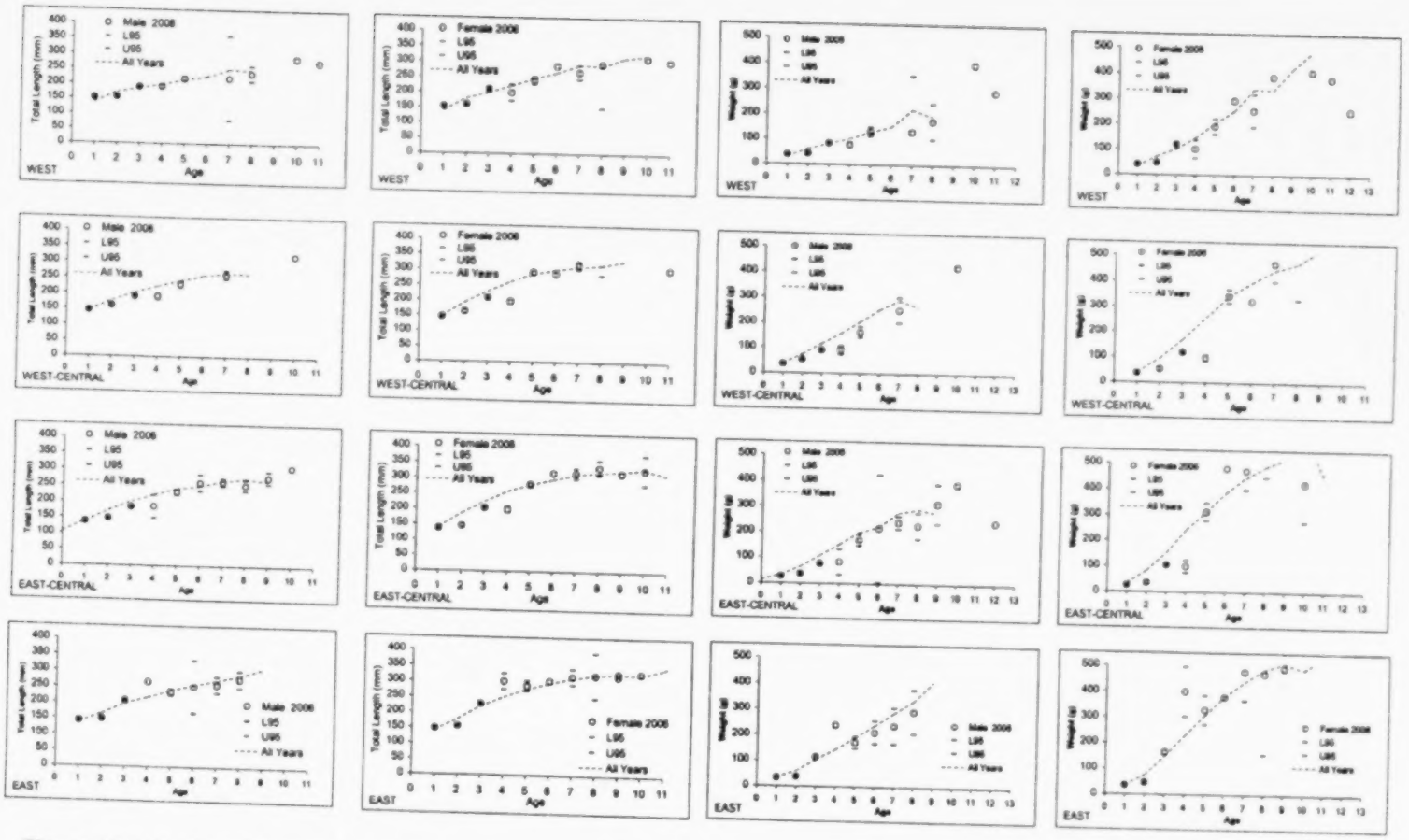

Figure 4.1.6 Yellow perch mean total length (mm) and weight (g) of males and females at age for the west (top row), west-central, east-central and east (bottom row) basins in 2006 (circles). 95% confidence limits shown. Dotted line represents mean size at age for all years to 2005. Partnership index fishing, 1989-2006.

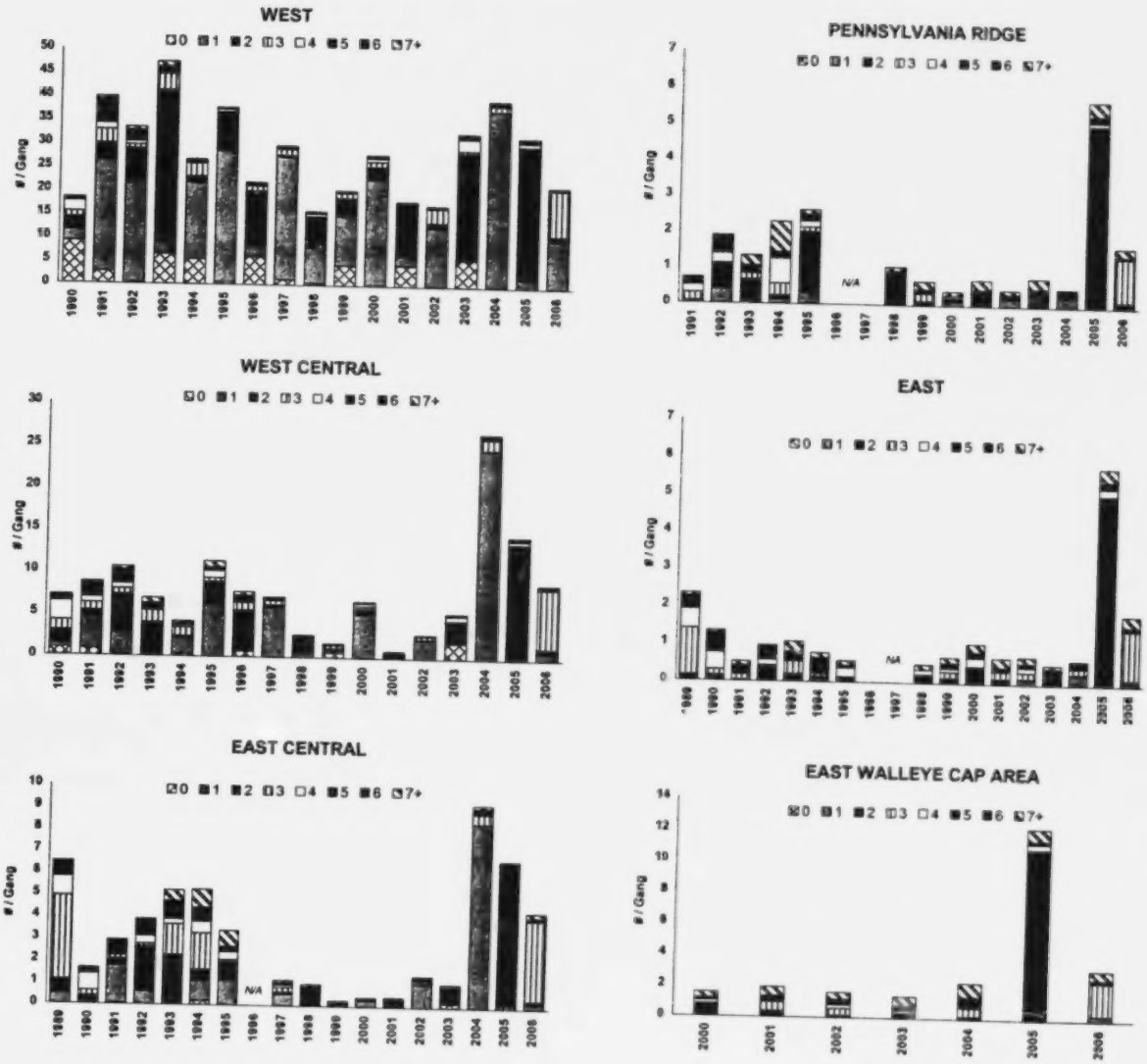

Figure 4.1.7 Walleye catch at age (numbers) per gang of index gill nets (canned and bottom), in the west, west-central, east-central, Pennsylvania Ridge and east basin Partnership surveys. Only standard canned sets are included in east basin and Pennsylvania Ridge graphs. East walleye cap area includes thermocline sets. East walleye cap area survey and east basin survey are not mutually exclusive. Note that catch rate and time axes differ among basins. Catch rates have been adjusted for walleye lacking age data. Absent bars indicate years when study was not done. 1995 east basin survey had low sample size.

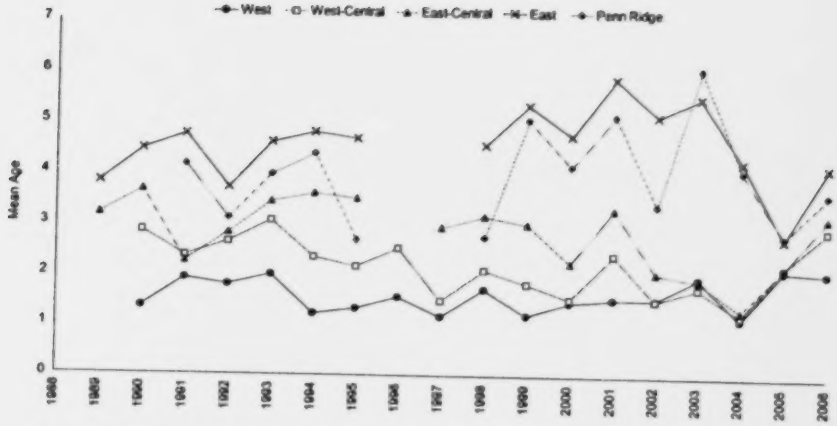

Figure 4.1.8 Mean age of walleye caught in partnership index gill nets by basin, 1989-2006. Ages based on scales & otoliths in 2005, 2006.

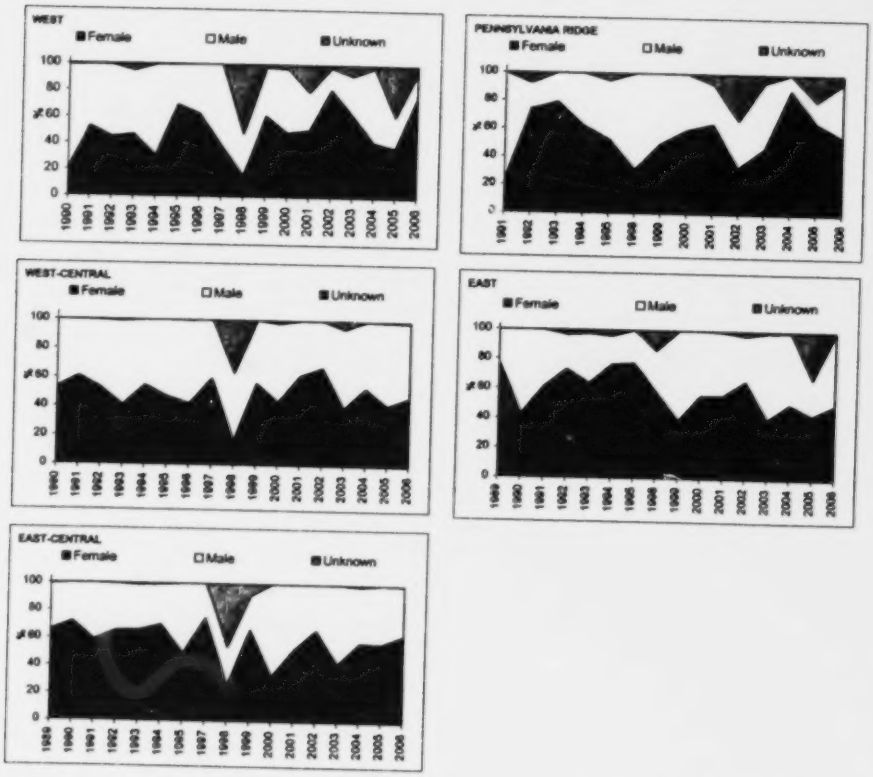

Figure 4.1.9 Proportion of walleye ages 2 and older represented by each sex caught in fall Partnership index gill netting, 1989-2006. Note absent years in east-central, Pennsylvania Ridge, and east basin time series.

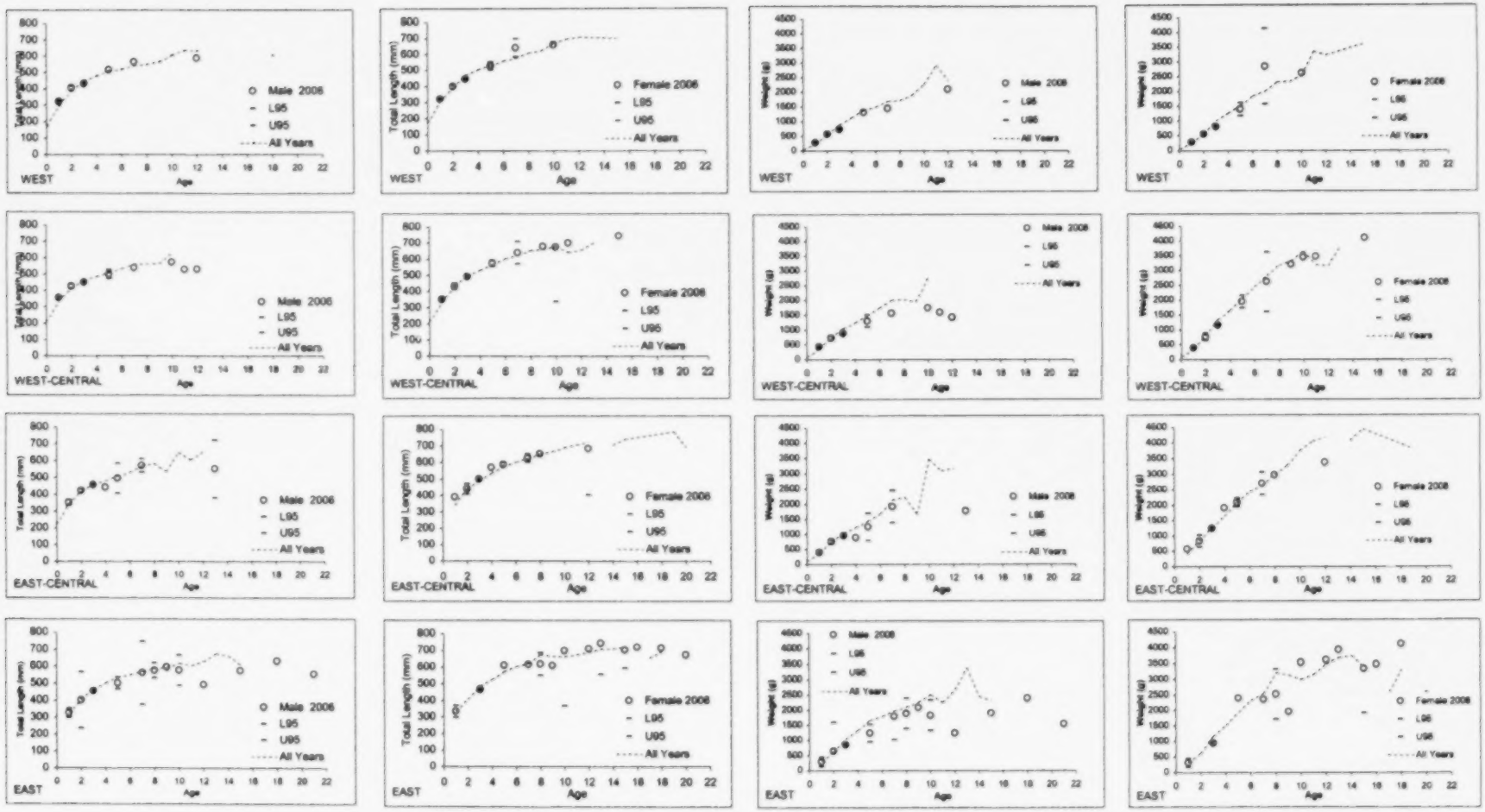

Figure 4.1.10 Walleye mean total length (mm) and weight (g) of males and females at age for the west (top row), west-central, east-central and east (bottom row) basins in 2006 (circles). 95% confidence limits shown. Dotted line represents mean size at age for all years to 2005. Partnership index fishing, 1989-2006.

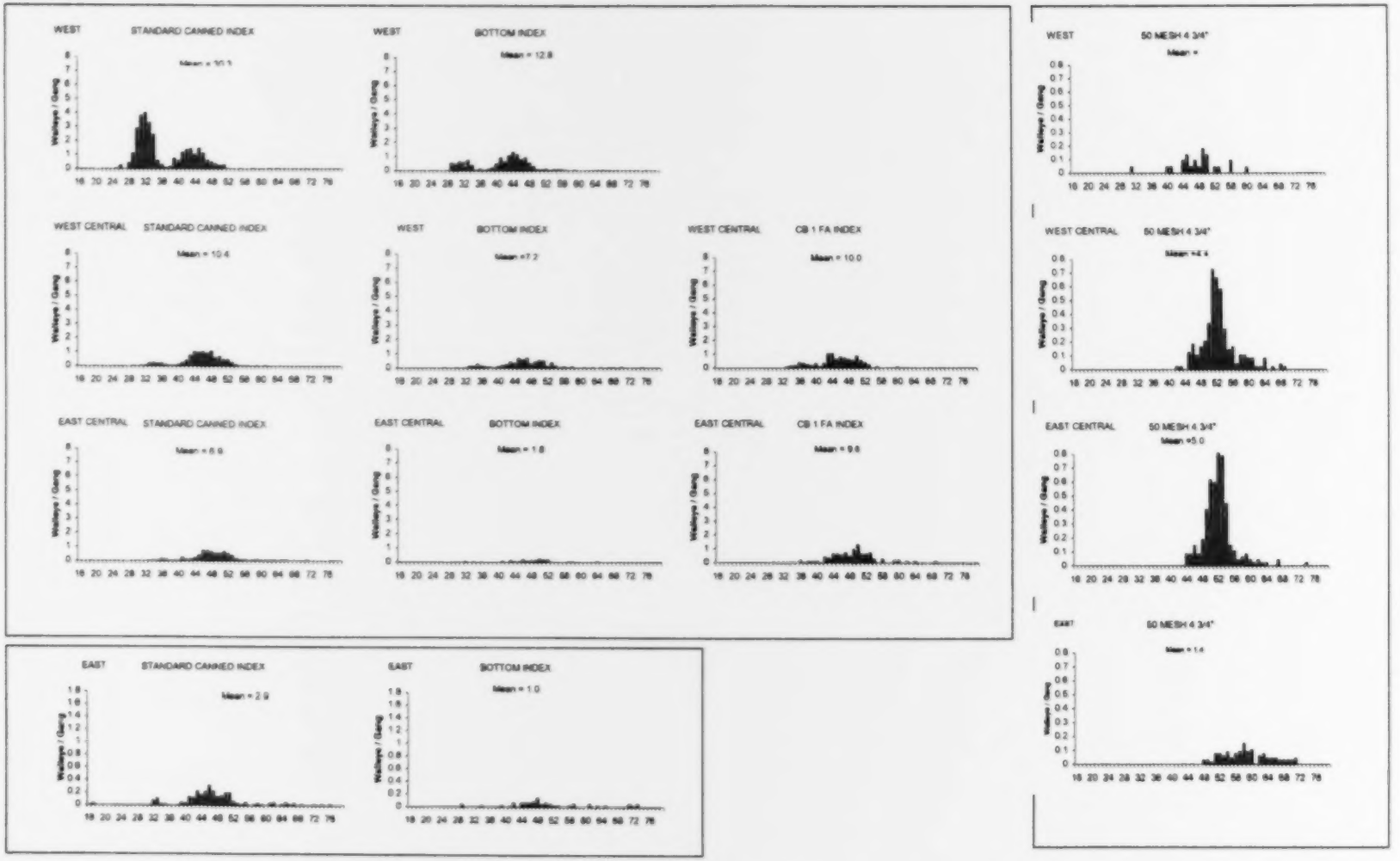

Figure 4.1.11 Walleye catch rates in 2006 by 1 cm length intervals in west basin (top row), west-central (2nd row), east-central (3rd row) and east basin (bottom row) in standard index canned nets (1st column), standard index bottom nets (2nd column), central basin 1 fathom canned index nets (3rd column), and 50 mesh 4.75" canned nets (column on far right). Graphs enclosed in borders have same Y axes (catch rates). All graphs have same x axes (length). East includes Pennsylvania Ridge, East and Cap Area surveys, all depths and index gear. Partnership Index Fishing, 2006.

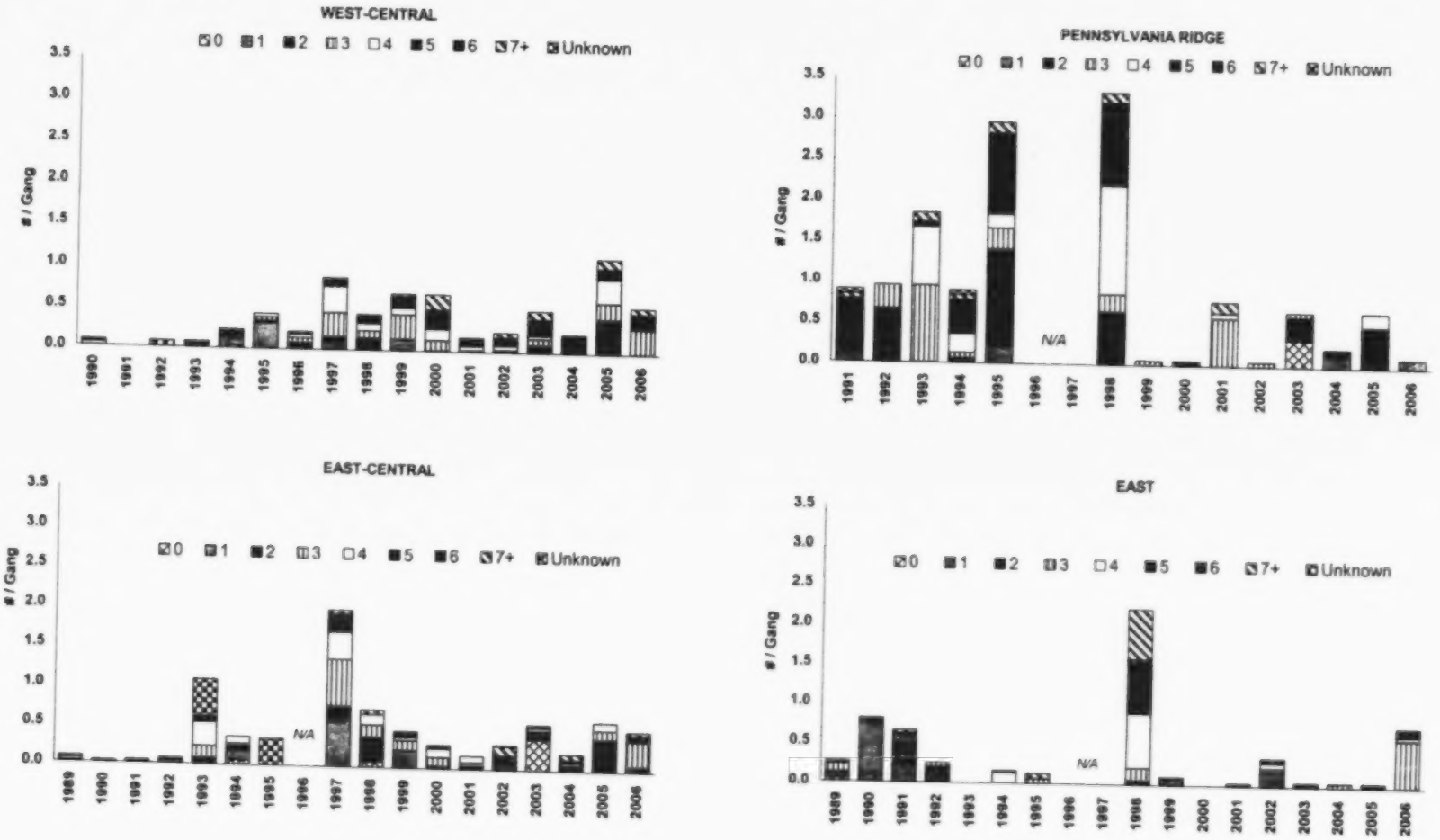

Figure 4.1.12 Lake whitefish catch at age (numbers) per gang of index gill nets (canned and bottom), in the west-central, east-central, Pennsylvania Ridge and east basin Partnership surveys. Only standard canned sets included in east basin and Pennsylvania Ridge graphs. Whitefish lacking age data are represented by the "unknown" series. East basin data 1995 based on few sites.

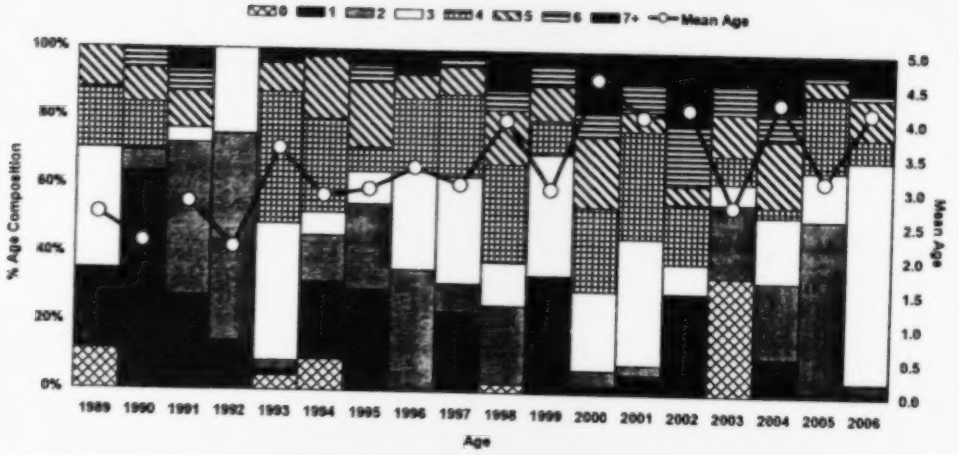

Figure 4.1.13 Whitefish age composition and mean age (line) from Partnership Index Fishing, all basins combined, all index gear included. Ages 7 and older pooled (otolith ages in 2006).

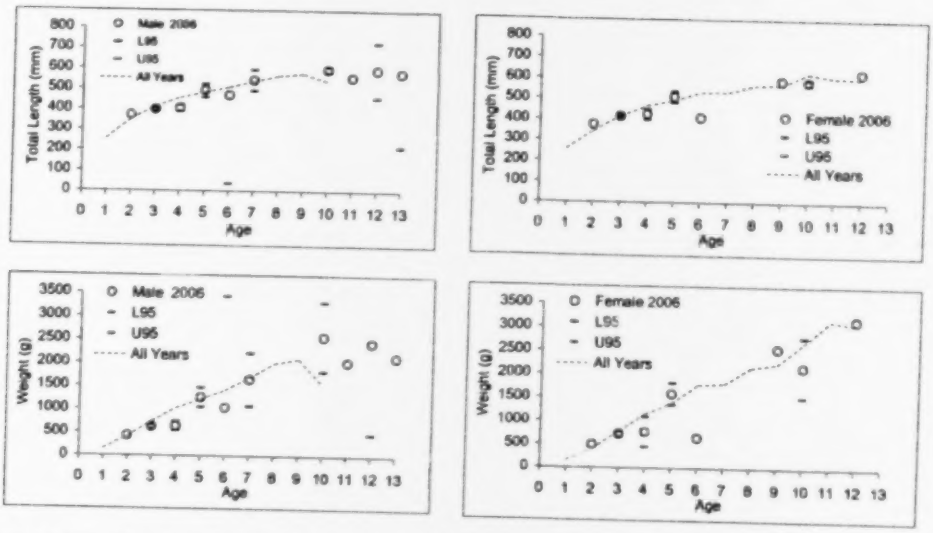

Figure 4.1.14 Mean length (top) and weight (bottom) at age for male (left) and female (right) lake whitefish, 2006 (circles). 95% confidence limits shown. Dotted line represents mean size at age 1989-2005, combined. Ages based on scales prior to 2006. Partnership Index Fishing 1989-2006, all basins.

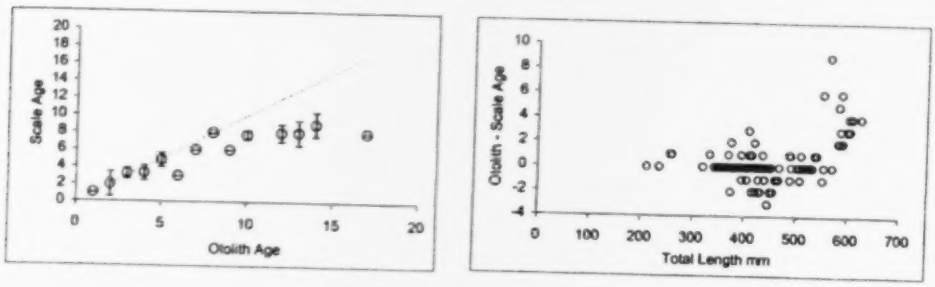

Figure 4.1.15 Whitefish mean scale age plotted against otolith age with 1 standard deviation (left graph). Difference between otolith and scale age relative to total length in right graph. Partnership Index Fishing 2006, all basins.

4.2 Index Trawling: Western Lake Erie

The western basin interagency trawling index, conducted by Ontario and Ohio, was completed during August, 2006. The study is used to assess year class strength of species based on catches of young-of-the-year and older fish. Lake Erie task groups use these values to project abundance of two-year-old yellow perch and walleye in advance of recruitment to fisheries. Species composition and trends in forage abundance are also described by index trawling. Length and weight measurements were recorded to describe trends in growth. Subsamples of yellow perch were aged using scales and otoliths.

The gear used was a two seam, 33' Biloxi bottom trawl (38' ground line) with a ½" cod end liner. Trawling took place at 36 fixed locations in Ontario waters of western Lake Erie from August 15 to August 23, 2006 (Figure 4.2.1). Trawls were 10 minutes in duration at an approximate speed of 1.6 knots. No trawls were excluded from analyses. Subsets of data from Project 87 (August 8 to September 7, 1982-1986) which preceded interagency trawling (Project 89) (1987 to present) were included in Figures 4.2.2 and 4.2.3 to compare year class strength of yellow perch and walleye over a longer time period. Catch rates from the 1982-1986 series are presented with and without inclusion of central basin sites. Indices of abundance are presented for young-of-the-year (YOY) fish, yearling-and-older (YAO) and small bodied fish with age groups pooled (all ages) for project 89 (1987-2005) (Table 4.2.1). Indices are expressed as number caught per trawl hour (CPTH), by species. In the future, trawl catch rates will be expressed as number caught per hectare in order to reduce bias associated with variable trawling speed and facilitate pooling of data with other interagency trawl surveys for which differences in fishing power exist.

For the 3rd consecutive year, the catch of young-of-the-year (YOY) white perch exceeded all other species and age groups combined (Table 4.2.1). YOY catches were double the average for white perch and smallmouth bass, moderate for yellow perch, white bass and rock bass and very weak for walleye and freshwater drum. The YOY gizzard shad CPTH was about 1/3 the average, but bottom trawls may not accurately describe Clupeid abundance.

CPTH of yearling-and-older channel catfish was well above the 10 year average (Table 4.2.1). White perch, freshwater drum, white bass, white suckers, carp, smallmouth bass and brown bullheads were caught in moderate numbers in 2006. Yearling and older yellow perch, walleye, gizzard shad, rock bass, quillback and shorthead redhorse were caught infrequently in 2006. No lake sturgeons were caught in 2006.

Catches of round gobies and rainbow smelt (primarily YOY) were above the 10 year mean. Troutperch and logperch abundance was near average in 2006. Alewife, emerald and spottail shiners, silver chub and Johnny darter catches were well below average. However, bottom trawls may not accurately assess cyprinid abundance as they are often suspended.

In 2006, the average total length of YOY yellow perch was 69 mm, which was well above the time series average (Figure 4.2.4). The mean weight was 3.7 g (STD = 1.2) The average total length YOY walleye (142 mm) was above the time series average but with overlapping 95% confidence limits (N = 7) (Figure 4.2.5). The mean weight of YOY walleye in August, 2006 was 22.7 g (STD = 6.1).

Table 4.2.1 Catch per trawl hour (CPTH) of abundant species as young-of-the-year, yearling-and-older and all ages, collected during interagency trawling in Ontario waters of western Lake Erie, 1987-2006. The average CPTH for each age group includes 1997-2006. Species with mean catch rates less than 0.1 fish per trawl hour were excluded with the exception of lake sturgeon.

Species	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Average (10 Yrs.)
young-of-the-year																					
White Perch	145.0	8,034.0	9,274.6	12,326.3	5,880.3	1,773.2	1,669.3	1,824.3	535.6	1,743.2	190.5	188.4	412.3	1,450.9	2,394.3	581.5	2,215.0	6,874.6	2,709.3	5,057.8	2,207.4
Gizzard Shad	504.6	1,527.4	1,785.6	1,752.8	82.3	377.5	1,270.4	183.0	145.8	3,903.6	29.4	618.2	378.4	2,677.1	3,736.2	76.8	749.7	35.3	248.2	280.5	883.0
Yellow Perch	0.9	328.9	788.7	739.7	109.3	262.0	766.9	953.7	1,337.8	3,310.1	109.9	285.4	816.0	75.6	998.0	23.7	3,677.8	89.9	181.5	564.0	682.2
White Bass	19.9	35.2	92.6	101.7	14.3	22.5	196.4	64.6	90.0	214.5	527.6	36.2	261.7	229.5	266.0	125.5	979.2	89.3	77.5	248.7	284.1
Freshwater Drum	2.2	114.8	7.8	3.7	126.7	0.7	4.9	1.3	0.4	11.8	2.1	4.6	17.2	35.3	25.0	171.7	197.0	52.4	31.8	2.2	53.9
Walleye	2.8	23.0	2.1	55.4	75.4	0.3	13.3	34.1	1.6	60.9	10.1	7.8	70.7	0.6	24.7	0.2	196.3	8.9	8.2	1.2	32.9
Smallmouth Bass	0.3	-	0.1	3.2	-	-	1.3	2.5	12.0	7.7	2.8	2.0	1.8	0.6	2.2	12.9	0.2	-	2.5	9.3	3.4
Rock Bass	-	-	-	0.2	0.7	-	0.4	0.5	0.4	0.6	-	-	1.0	1.5	1.7	1.1	-	0.2	0.5	0.5	0.6
yearling-and-older																					
Yellow Perch	46.4	273.9	12.1	82.5	136.0	104.2	161.3	119.4	254.1	628.7	120.4	150.3	314.1	540.8	203.5	187.4	760.4	620.1	451.0	129.0	347.7
White Perch	101.4	186.5	31.6	19.7	215.0	586.5	147.3	3.3	64.2	46.7	4.3	5.7	184.4	90.9	54.5	42.4	1,795.0	272.3	107.2	195.8	275.2
Freshwater Drum	14.8	219.6	6.4	35.5	56.3	30.5	60.4	16.6	31.1	67.3	23.1	36.7	58.3	102.0	78.3	156.2	113.0	140.9	140.2	88.7	93.7
Walleye	9.1	25.1	4.4	5.5	10.3	37.0	5.3	5.4	21.0	3.8	6.4	9.5	9.2	34.5	3.7	6.4	5.1	112.1	19.5	6.2	21.3
Gizzard Shad	74.3	2.8	-	4.8	69.7	0.2	0.2	0.2	2.1	0.8	40.5	0.2	6.4	0.6	1.0	1.1	-	-	0.2	0.3	5.0
White Bass	7.2	12.5	8.8	3.4	7.1	2.8	21.8	0.2	3.5	-	1.5	0.9	1.2	17.6	0.3	3.7	9.1	5.7	0.7	3.5	4.4
White Sucker	-	0.5	-	0.8	0.7	1.3	0.4	0.2	2.7	0.6	0.6	-	2.4	0.6	1.7	3.2	1.2	2.8	3.5	1.2	1.7
Channel Catfish	3.5	10.7	-	2.9	2.7	1.0	1.3	0.2	0.7	2.1	-	0.2	2.0	0.6	0.5	1.1	1.4	1.2	2.3	3.5	1.3
Carp	4.8	6.7	-	4.6	4.3	2.0	0.9	1.3	3.4	1.1	0.8	0.8	1.4	1.3	0.7	1.6	0.5	2.5	1.8	1.2	1.3
Rock Bass	-	2.8	-	1.5	1.7	1.0	1.8	4.3	2.3	3.9	0.6	0.2	0.6	1.1	2.8	0.9	0.5	0.3	0.5	-	1.3
Quillback	-	-	-	0.8	1.0	-	0.2	-	0.9	0.6	0.4	-	0.4	0.4	0.3	1.4	0.2	3.2	0.2	-	0.8
Smallmouth Bass	-	0.3	0.3	1.4	-	5.3	1.8	1.3	1.9	0.6	0.4	0.6	2.4	0.8	0.7	-	0.5	0.3	-	0.3	0.6
Brown Bullhead	0.7	4.2	-	1.9	0.7	0.3	-	-	-	-	0.2	-	1.2	0.6	3.5	-	-	-	-	0.3	0.6
Shorthead Redhorse	-	-	-	-	0.1	-	-	0.2	-	-	-	-	-	-	-	-	0.9	2.0	0.2	-	0.3
Lake Sturgeon	-	-	-	-	-	-	-	0.3	-	-	0.2	-	-	-	-	-	0.2	-	-	-	0.0
all ages																					
Trout-perch	3.7	340.4	224.3	544.0	704.9	108.5	403.3	310.0	113.5	599.6	99.0	102.3	221.1	524.1	275.3	296.1	67.3	998.9	478.7	429.3	366.2
Alewife	117.4	1,451.4	388.9	495.2	79.3	4,720.5	3,346.7	53.4	131.1	1,183.9	109.7	51.1	206.3	678.1	843.0	376.2	-	-	-	0.5	364.8
Emerald Shiner	173.3	4.1	5.1	227.7	18.3	88.3	46.7	37.4	201.5	235.7	99.8	9.0	69.2	52.5	77.9	167.7	1,007.0	135.3	186.2	99.0	204.0
Round Goby	-	-	-	-	-	-	-	-	-	-	4.3	119.4	143.7	189.9	116.8	180.4	97.5	272.0	93.5	269.0	121.8
Spottail	3.4	74.8	34.2	50.6	75.1	59.7	42.2	49.6	581.7	69.0	129.2	133.7	136.9	38.4	102.1	19.4	25.8	23.7	141.3	26.3	82.0
Smelt	4.5	2.1	4.9	17.2	0.3	100.0	28.7	0.2	5.3	3.0	3.2	9.8	-	64.3	0.3	9.7	49.5	128.7	3.0	80.5	27.2
Silver Chub	0.3	4.5	0.1	2.3	10.7	32.5	14.9	8.2	2.7	10.3	17.4	14.5	29.1	7.1	9.6	8.1	6.7	12.7	9.3	1.3	12.5
Logperch	-	4.2	2.7	2.8	12.7	0.3	0.4	34.0	2.5	13.3	3.2	5.0	0.4	0.2	-	-	1.0	5.4	3.3	3.2	3.2
Cyprinids	-	-	-	-	-	-	-	3.5	-	2.1	-	-	-	-	-	-	-	-	0.2	23.7	2.4
Johnny Darter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2
Total	1,240.4	12,690.2	12,675.5	16,488.0	7,696.0	8,318.2	8,208.9	3,712.3	3,549.5	12,125.3	1,537.2	1,792.3	3,349.3	7,017.2	9,224.6	2,456.0	11,957.8	9,890.6	4,902.2	7,527.0	5,965.4
# of 10 minute trawls	41.0	37.0	45.0	39.0	42.0	36.0	27.0	38.0	34.0	32.0	32.0	32.0	30.0	32.0	36.0	34.0	35.0	36.0	36.0	36.0	33.9

* Unweighted, arithmetic mean catch per trawl hour.

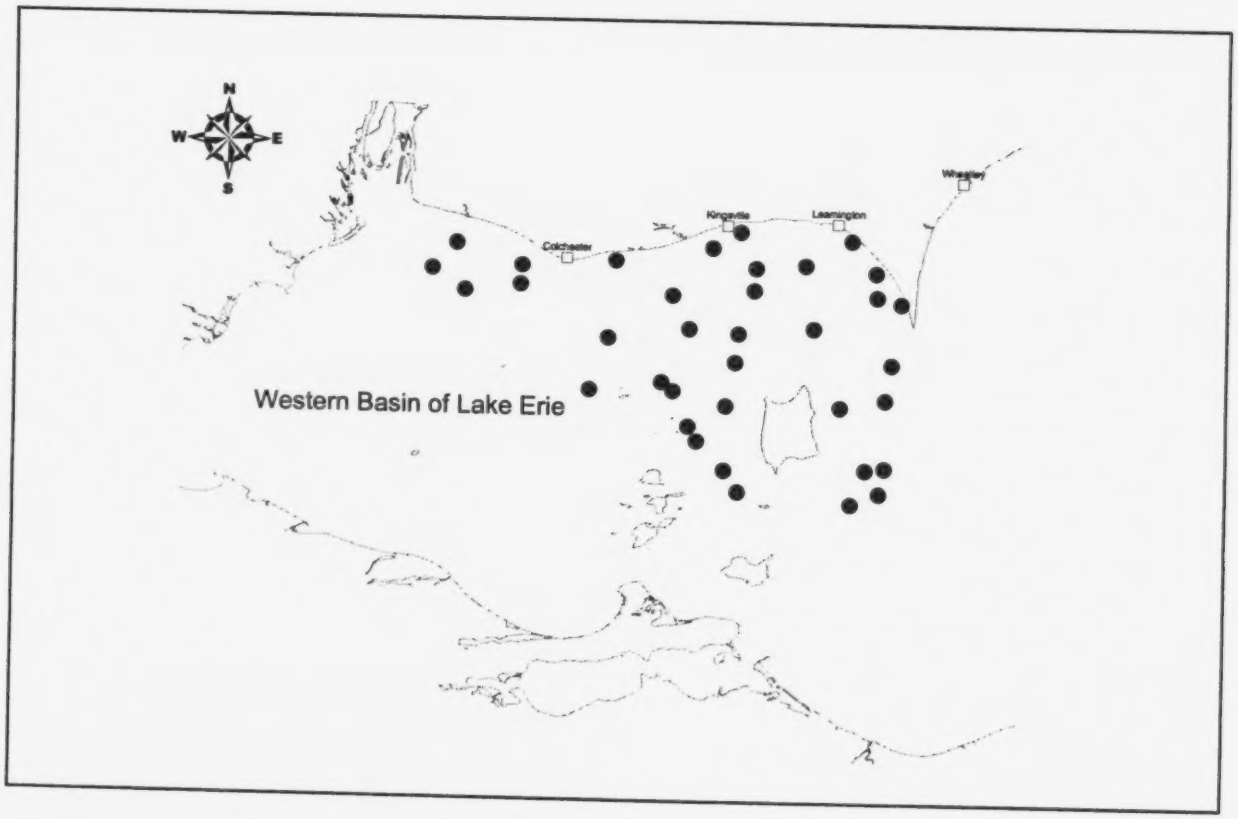

Figure 4.2.1 Ontario index trawling locations sampled in the western basin of Lake Erie during August, 2006. All 36 trawls were valid.

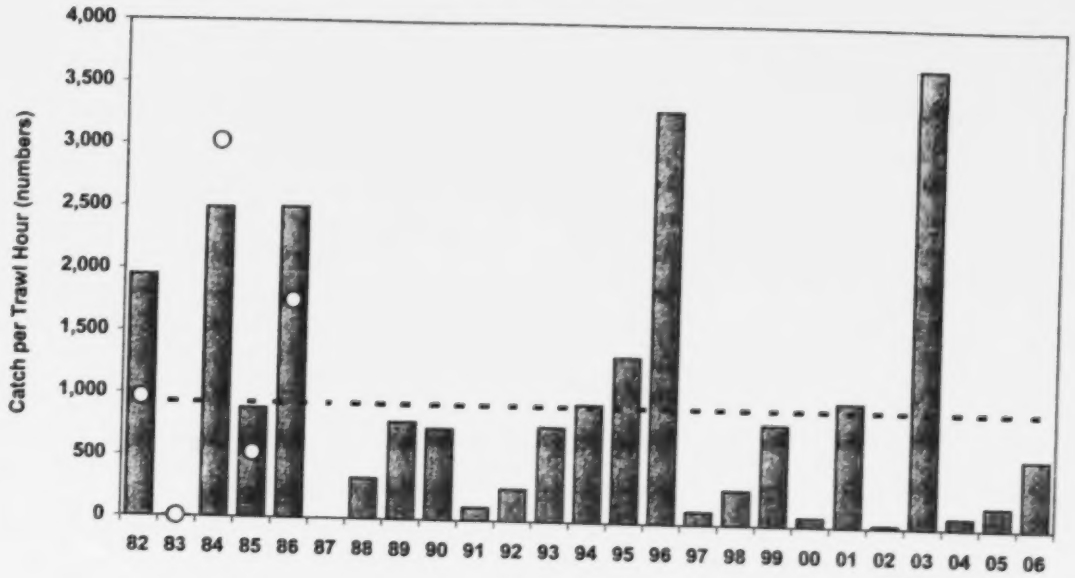

Figure 4.2.2 Number of young-of-the-year yellow perch caught per trawl hour during interagency trawling (1987-2006) and project 87 (1982-1986) in western Lake Erie. Project 87 data collected from August 8 to September 7. Horizontal line indicates 1982-2006 average catch per trawl hour. Circles (1982-1986) indicate graph values from older reports that included several central basin sites.

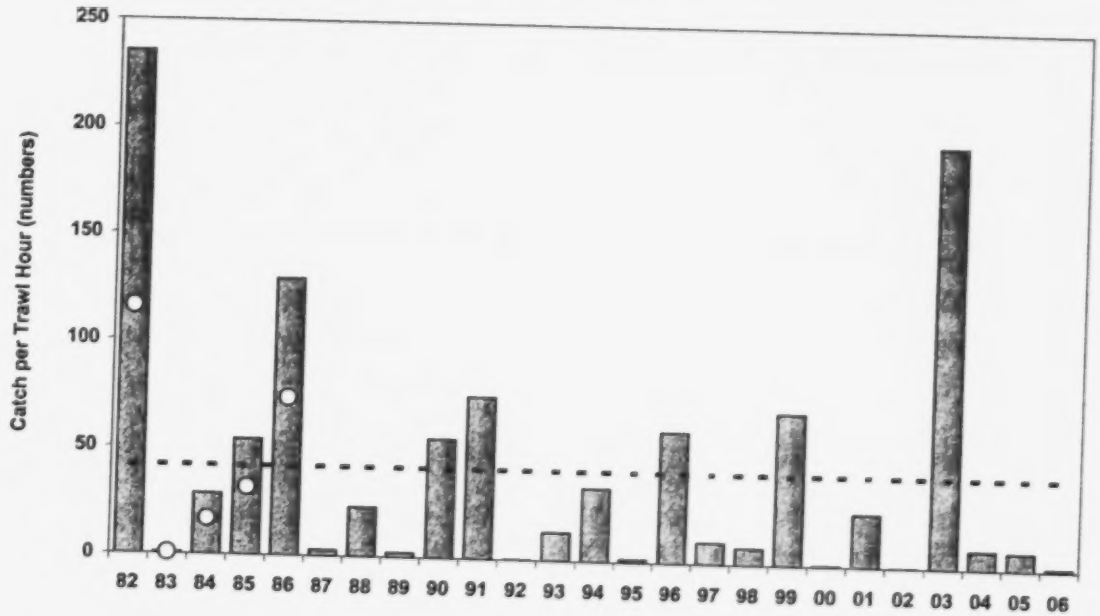

Figure 4.2.3 Number of young-of-the-year walleye caught per trawl hour during interagency trawling (1987-2006) and project 87 (1982-1986) in western Lake Erie. Project 87 data collected from August 8 to September 7. Horizontal line indicates 1982-2006 average catch per trawl hour. Circles (1982-1986) indicate graph values from previous reports that included several central basin sites.

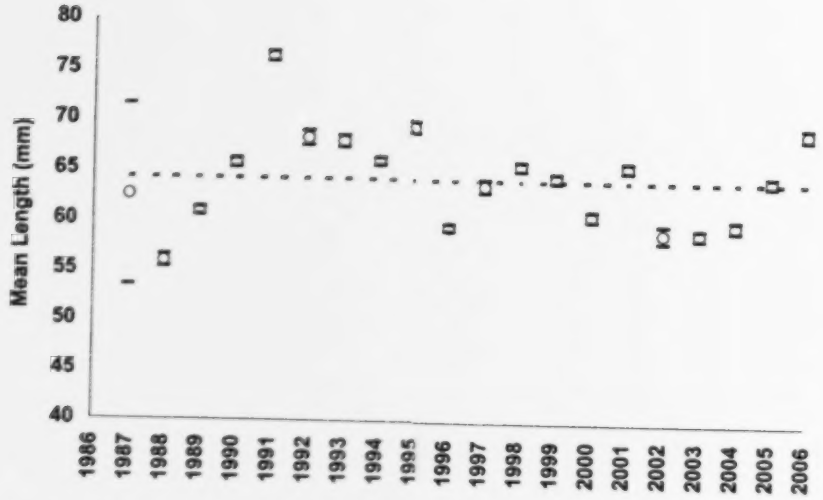

Figure 4.2.4 Mean total length of young-of-the-year (YOY) yellow perch with 95% confidence limits. Interagency trawling, Ontario waters of western Lake Erie, 1987-2006. Horizontal broken line indicates the average of the time series.

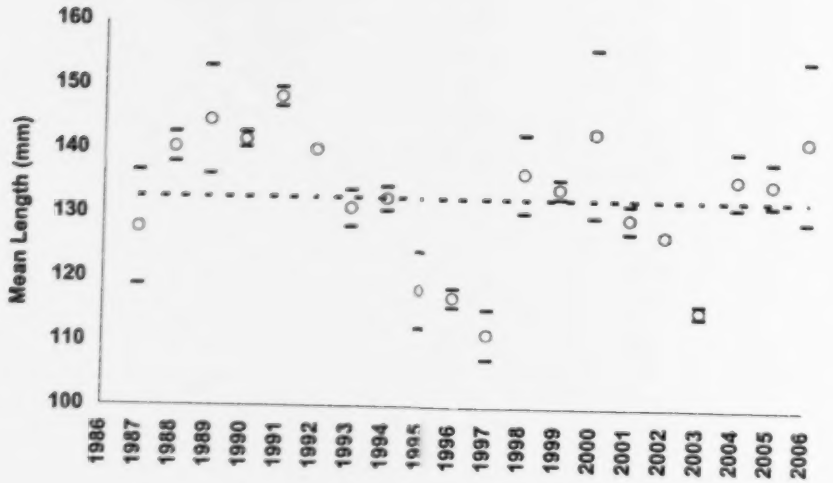

Figure 4.2.5 Mean total length of young-of-the-year (YOY) walleye with 95% confidence limits. Interagency trawling, Ontario waters of western Lake Erie, 1987-2006. Horizontal broken line indicates the average of the time series. Two (2) YOY were caught in 1992 and one (1) in 2002.

4.3 Long Point Bay Index Trawl Surveys

Current assessment of juvenile fish in Long Point Bay consists of three independent bottom trawl surveys conducted concurrently during early fall each year in three areas (Figure 4.3.1). Trawling with a 6.1-m modified Biloxi bottom trawl, targeting yellow perch has been conducted at up to four fixed locations annually since 1980 in Inner Long Point Bay (Inner Bay Trawl Assessment) and the inshore waters of outer Long Point Bay (Nearshore Outer Bay Trawl Assessment). A third trawl survey was initiated in 1984 to estimate recruitment of rainbow smelt. In this survey, a 10-m Biloxi bottom trawl was fished at four fixed stations in the offshore waters of Outer Long Point Bay (Offshore Outer Bay Trawl Assessment).

Trawling was conducted weekly during September and October. Two 10-minute tows were made at each station per week. Total annual trawling effort in each survey was approximately 640 minutes. Trawling at the Offshore Outer Bay stations has been conducted only during October since 1996. Index trawling during 2005 was discontinued after October 3rd at Inner Bay and nearshore Outer Bay stations due to budget constraints.

Trawl catches were sorted by species and age group. Species catch was classified as young-of-the-year (YOY) and yearling-and-older (YAO) based on a fork length criterion derived from examinations of size frequency distributions. Random samples of YOY and YAO for selected species were measured for lengths and weight. Sex, maturity and age (from scale interpretations) were also recorded for YAO fish.

Relative abundance indices were expressed as arithmetic mean catch (number) per hectare (NPHa). Arithmetic means were calculated from the summed catch and effort of tows 1 and 2 at each location.

Smelt

Recruitment of age 0 rainbow smelt in 2006 was moderately strong (Table 4.3.3). Relative abundance of YOY smelt in the offshore waters of Long Point Bay in 2006 (NPHa=1256) was the 8th largest observed during the survey's 23-year history, and 18% higher than the long-term average (1984-2005 Avg. NPHa=1063).

YAO smelt abundance increased in 2006 (NPHa=136.2), but remained well below the survey's long-term average (1984-2005 avg. NPHa=519). Age 3 smelt from the strong 2003 year class accounted for 43% of the 2006 (October) YAO smelt catch in number (Table 4.3.5).

Average length and weight of age 0 and age 1 smelt increased in 2006 following record small mean YOY size in 2005 (Figure 4.3.2).

Yellow Perch

Indicators of age 0 yellow perch recruitment in 2006 were mixed (Tables 4.3.1 to 4.3.3). Inshore trawl assessments of Long Point Bay characterized the 2006 yellow perch year class as being very weak, ranking it among the second and fourth weakest observed during the respective time series of the Inner Bay (Table 4.3.1) and nearshore outer bay (Table 4.3.2) trawl surveys. Conversely, offshore trawl assessment during October 2006 indicates age 0 yellow perch recruitment was the third highest observed since 1984 (Table 4.3.3). In three of the four most recent survey years, abundance of age 0 yellow perch was greater offshore than inshore, suggesting a possible shift in distribution of juvenile perch.

Mean size of age 0 yellow perch has fluctuated year to year in an increasing trend through the time series (Figure 4.3.3). Maximum mean YOY perch size was observed in 2005, and this was followed in 2006 by a 14% decrease in mean total length (2006 mean = 79 mm) and 45% decrease in mean weight (2006 mean = 5.5 g), however both of these size measures (in 2006) remained above the long-term average (Figure 4.3.3).

YAO yellow perch trawl catches during 2006 were very low among inshore sample locations (Tables 4.3.1 and 4.3.2), but were observed in above average abundance in offshore areas (Table 4.3.4). One (66%) and three year old (18%) fish were the dominant age classes comprising the YAO perch catch (Table 4.3.5).

Smallmouth bass

Recruitment of age 0 smallmouth bass was poor in 2006; catch rates of YOY bass were the lowest observed since 1990 and only about one quarter of the long-term average (Table 4.3.1). Mean size of age 0 smallmouth bass has fluctuated between 60 and 90 in an increasing trend mm TL over the Inner Bay trawl survey time series (Figure 4.3.4). Mean size at age 0 reached a maximum in 2005 (2005: mean TL = 93 mm; mean wt. = 12.1 g) and then decreased to approximately average TL and weight in 2006 (2006: mean TL = 76 mm; mean wt. = 6.0 g) (Figure 4.3.4).

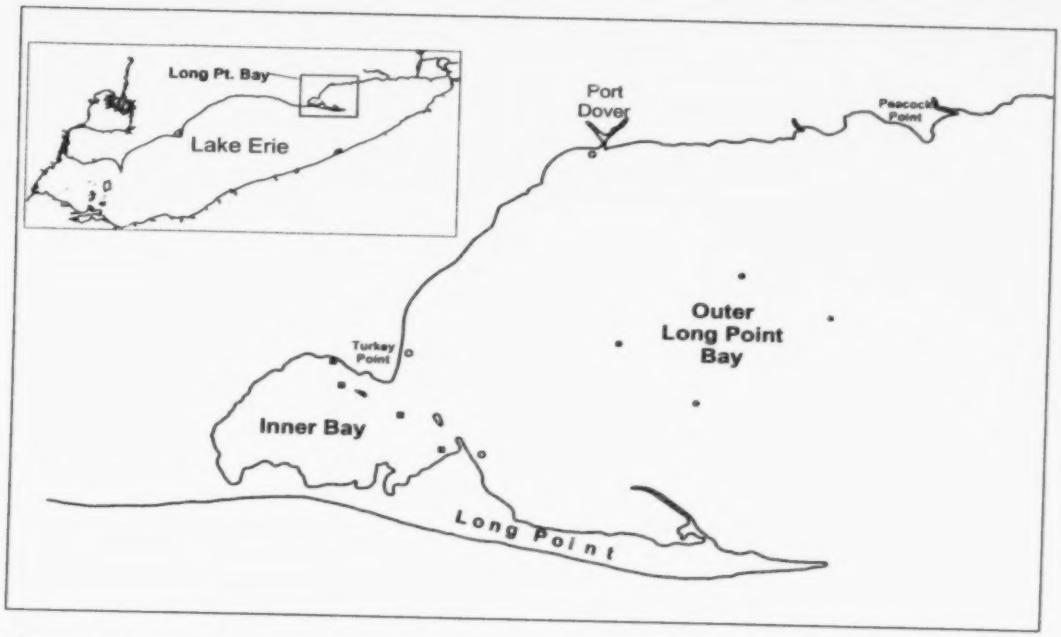

Figure 4.3.1 Location of trawl stations where bottom trawling was conducted in Inner Bay (■), and the nearshore (○) and offshore (●) waters of Outer Long Point Bay, Lake Erie.

Table 4.3.1 Relative abundance (mean number per hectare) of selected young-of-the-year fish species caught in Inner Long Point Bay, Lake Erie, 1980-2006. Pooled data are from bottom trawling (6.1-m trawl) during September and October.

Year	Effort (min.)	Yellow Perch	Rock Bass	Smallmouth Bass	Largemouth Bass	Spottail Shiner	Banded Killifish	Johnny Darter	Sunfish (Lepomis spp.)	Round[b] Goby
1980	180	125.7	6.5	2.9	2.2	265.4	0.0	1.0	2.2	0.0
1981	400	486.6	1.8	0.1	0.0	3.7	0.0	1.0	5.0	0.0
1982	640	741.9	8.4	7.7	2.4	79.7	0.2	0.8	0.1	0.0
1983 [a]	220	125.9	7.0	7.5	5.3	0.2	1.0	1.2	11.8	0.0
1984	640	1031.3	36.7	1.9	5.2	99.9	1.2	5.6	84.8	0.0
1985	640	21.8	29.0	9.3	3.1	682.9	0.5	0.7	3.0	0.0
1986	720	1169.5	7.3	3.0	3.7	626.2	0.1	0.0	1.2	0.0
1987	640	2.5	4.3	3.1	4.6	134.6	0.0	0.1	4.7	0.0
1988	640	238.0	3.1	3.6	3.1	465.6	0.1	0.2	6.3	0.0
1989	640	317.4	9.9	3.6	4.4	554.7	14.9	26.2	75.0	0.0
1990	640	160.3	3.8	3.1	5.2	270.0	8.1	23.0	101.5	0.0
1991	720	93.7	3.8	8.2	4.8	255.0	7.9	33.1	6.3	0.0
1992	720	378.3	2.4	10.9	0.9	47.2	0.6	8.1	0.1	0.0
1993	640	159.5	14.6	16.7	2.0	72.1	3.8	9.3	117.9	0.0
1994	640	59.2	5.4	26.0	26.6	39.8	7.7	51.6	10.6	0.0
1995	640	3.5	57.0	12.3	49.5	98.6	33.9	52.2	48.8	0.0
1996	720	37.5	145.1	13.7	36.0	49.6	30.6	22.0	104.3	0.0
1997	720	18.1	16.7	41.5	11.0	66.5	11.2	34.9	2.8	0.0
1998	720	854.2	13.3	9.6	8.0	152.1	152.1	25.2	13.2	0.0
1999	720	23.2	11.8	64.5	66.2	64.8	31.4	13.2	4.6	0.4
2000	640	1.9	28.8	5.2	3.5	2.3	8.2	5.1	2.4	17.4
2001	640	479.3	3.3	13.9	2.2	10.7	8.4	8.0	4.4	122.6
2002	640	6.5	9.1	8.9	16.4	0.0	47.1	6.2	18.5	46.6
2003	640	117.0	2.3	6.5	2.2	0.3	2.2	7.4	3.6	20.4
2004	720	0.1	0.4	8.1	0.6	1.9	0.2	13.8	0.2	66.9
2005 [c]	480	8.8	9.7	9.0	7.0	1.0	3.7	0.2	10.3	21.0
2006	640	0.6	0.3	3.1	2.4	0.1	0.2	9.9	0.2	21.4
Avg. for 1980-2006		256.2	17.0	11.6	10.6	155.6	14.4	13.5	24.7	11.4

[a] Index trawling during 1983 discontinued after September 30th.
[b] Abundance indices of round goby include all ages.
[c] Index trawling during 2005 discontinued after October 3rd.

Table 4.3.2 Relative abundance (mean number per hectare) of selected young-of-the-year fish species caught in the nearshore waters of Outer Long Point Bay, Lake Erie, 1980-2006. Pooled data are from bottom trawling (6.1-m trawl) in September and October.

Year	Effort (min.)	Yellow Perch	White Perch	White Bass	Alewife	Gizzard Shad	Emerald Shiner	Spottail Shiner	Round[b] Goby
1980	285	27.5	0.0	12.1	2.9	12.0	19.2	74.1	0.0
1981	300	75.4	0.0	0.8	0.0	17.8	0.0	2.0	0.0
1982	300	46.9	0.0	1.9	145.1	2.6	0.7	68.8	0.0
1983 [a]	0								
1984	480	237.8	129.5	103.8	3.4	29.5	25.3	110.1	0.0
1985	500	3.1	1.9	50.8	21.4	16.6	59.3	512.3	0.0
1986	540	105.9	60.3	22.3	8.4	103.3	292.7	195.3	0.0
1987	480	2.3	1.2	0.3	250.9	6.8	14.0	127.5	0.0
1988	480	410.6	60.7	0.0	1.5	19.3	138.9	542.4	0.0
1989	420	174.0	5.1	7.8	29.4	8.6	820.7	608.9	0.0
1990	480	31.4	58.6	5.9	0.9	8.5	226.0	1581.2	0.0
1991	539	9.0	2.3	1.3	21.3	0.4	35.6	336.4	0.0
1992	520	34.1	5.1	0.0	576.9	0.3	23.3	167.6	0.0
1993	360	21.1	8.3	0.3	2.3	2.9	9.1	952.4	0.0
1994	420	98.8	37.8	0.0	4.4	21.3	12.2	458.2	0.0
1995	480	5.0	1.5	0.2	1.6	3.2	386.1	249.9	0.0
1996	540	130.0	20.2	0.4	0.5	46.2	381.7	1071.1	0.0
1997	540	12.6	7.1	0.1	1.6	5.3	10.6	1044.3	0.0
1998	540	84.1	0.5	0.0	0.0	2.9	108.5	528.0	0.0
1999	540	1.7	0.3	0.2	0.2	5.2	1.4	576.8	0.6
2000	480	8.7	5.9	0.1	17.4	5.8	20.7	1118.2	24.4
2001	480	55.9	3.9	1.9	0.3	6.3	28.6	50.4	129.9
2002	480	0.3	0.0	0.0	13.0	1.5	20.0	12.6	97.2
2003	480	48.8	8.6	0.2	8.9	3.1	160.3	40.0	61.6
2004	540	0.3	0.1	0.0	3.2	3.6	405.2	43.2	69.1
2005 [c]	360	10.3	0.4	0.7	11.0	1.9	1.1	58.7	28.0
2006	480	2.0	0.8	0.2	459.4	19.0	64.8	12.5	20.8
Avg. for 1980-2005		65.4	16.8	8.5	45.1	13.4	128.0	421.2	16.4

[a] Index trawling discontinued during 1983.
[b] Abundance indices of round goby include all ages.
[c] Index trawling during 2005 discontinued after October 3rd.

Table 4.3.3 Relative abundance (mean number per hectare) of selected young-of-the-year fish species caught in the offshore waters of Outer Long Point Bay, Lake Erie, 1984-2006. Data are from bottom trawling (10-m trawl) during October.

Year	Effort (min.)	Smelt	White Perch	White Bass	Yellow Perch	Alewife	Gizzard Shad	Emerald Shiner	Round* Goby
1984	320	2206.3	13.7	166.2	7.3	22.4	14.6	0.1	0.0
1985	394	84.0	12.9	8.1	1.2	0.5	0.4	0.8	0.0
1986	300	3510.5	0.3	16.9	0.0	10.8	74.4	3.1	0.0
1987	360	316.8	0.9	0.2	0.0	24.2	1.0	56.4	0.0
1988	400	761.4	4.1	0.2	0.5	25.4	1.4	51.3	0.0
1989	320	1418.3	1.6	6.7	0.5	45.3	0.2	11.3	0.0
1990	320	1454.4	1.1	9.3	0.0	38.2	0.7	9.2	0.0
1991	320	67.1	16.6	4.1	0.8	99.3	2.6	14.9	0.0
1992	320	1646.2	0.0	0.0	0.0	6.0	0.0	6.8	0.0
1993	320	233.6	0.4	5.1	3.2	12.6	1.3	11.1	0.0
1994	320	391.2	0.8	0.0	3.2	8.5	0.2	69.1	0.0
1995	320	93.0	1.1	0.3	4.9	0.8	0.0	11.4	0.0
1996	240	353.2	0.3	0.3	7.9	0.0	0.3	390.7	0.0
1997	400	154.4	0.0	0.0	0.0	0.1	0.0	0.1	0.0
1998	400	422.5	0.5	0.1	8.1	1.4	4.9	19.6	0.0
1999	310	40.3	1.0	40.0	14.4	2174.5	65.2	15.1	0.2
2000	400	259.9	0.0	2.0	3.0	25.6	0.3	3.3	50.8
2001	400	2633.3	6.1	19.4	13.8	81.1	16.0	12.7	69.0
2002	400	142.5	0.0	0.0	0.0	35.3	3.2	9.5	127.0
2003	400	7058.1	16.2	2.0	240.6	0.5	68.6	3388.0	158.8
2004	400	132.2	0.0	0.0	0.1	0.3	0.2	20.3	323.8
2005	400	0.9	0.1	1.1	156.2	0.1	1.7	645.7	66.9
2006	400	1256.0	0.9	0.3	38.0	78.6	1.4	452.3	93.3
Avg. for 1984-2005		1062.7	3.5	12.8	21.2	118.8	11.7	215.9	36.2

* Abundance indices of round goby include all ages.

Table 4.3.4 Relative abundance (mean number per hectare) of yellow perch at ages 0 to 3 caught with a 6.1-m bottom trawl in Long Point Bay, Lake Erie, during September - October, 1980-2006.

	Year	Effort (minutes)	AGE			
			0	1	2	3
Inner Bay	1980	180	125.7	144.9	104.3	100.5
	1981	400	486.6	59.2	50.2	14.1
	1982	640	741.9	125.6	27.9	33.1
	1983 [a]	220	125.9			
	1984	640	1031.3	65.1	60.4	46.4
	1985	640	21.8	122.5	52.8	35.7
	1986	720	1169.5	36.4	172.7	28.2
	1987	640	2.5	26.5	1.9	13.2
	1988	640	238.0	3.1	47.1	1.9
	1989	640	317.4	59.1	19.1	74.1
	1990	640	160.3	27.9	48.6	4.4
	1991	720	93.7	22.7	14.5	8.0
	1992	720	378.3	21.5	4.3	1.0
	1993	640	159.5	13.6	9.4	1.7
	1994	640	59.2	20.3	7.6	8.7
	1995	640	3.5	41.2	19.5	3.8
	1996	720	37.5	4.2	16.9	6.4
	1997	720	18.1	6.3	3.1	7.8
	1998	720	854.2	14.3	10.3	1.5
	1999	720	23.2	105.5	17.4	7.6
	2000	640	1.9	3.0	69.3	4.1
	2001	640	479.3	5.0	11.8	31.7
	2002	640	6.5	36.7	6.7	7.9
	2003	640	117.0	0.9	5.0	0.4
	2004	720	0.1	15.5	2.0	1.8
	2005 [b]	480	8.8	0.2	10.9	0.6
	2006	640	0.6	3.9	1.0	3.9
	Avg. for 1980-2005		256.2	39.2	31.7	17.8
Outer Bay	1980	285	27.5	50.0	17.4	15.8
	1981	300	75.4	4.0	4.2	1.1
	1982	300	46.9	16.1	4.9	4.2
	1983	0				
	1984	480	237.8	6.6	2.4	1.6
	1985	500	3.1	61.5	10.9	7.1
	1986	540	105.9	0.7	31.9	4.2
	1987	480	2.3	178.0	9.8	55.9
	1988	480	410.6	0.6	31.0	6.5
	1989	420	174.0	32.6	15.6	50.4
	1990	480	31.4	10.0	19.4	2.9
	1991	539	9.0	0.9	0.7	0.5
	1992	520	34.1	6.9	0.8	0.6
	1993	360	21.1	3.3	2.2	0.1
	1994	420	98.8	10.9	8.0	1.5
	1995	480	5.0	24.0	9.5	2.4
	1996	540	130.0	2.2	4.8	1.1
	1997	540	12.6	34.1	1.8	2.1
	1998	540	84.1	1.2	0.7	0.4
	1999	540	1.7	41.3	1.2	0.5
	2000	480	8.7	2.8	11.5	0.2
	2001	480	55.9	1.2	1.9	3.7
	2002	480	0.3	10.8	1.3	4.4
	2003	480	48.8	0.4	4.1	0.1
	2004	540	0.3	3.5	0.5	1.0
	2005 [b]	360	10.3	0.1	6.9	0.3
	2006	480	2.0	1.0	0.1	0.7
	Avg. for 1980-2005		65.4	20.1	8.1	6.8

[a] Index trawling during 1983 discontinued after September 30th.
[b] Index trawling during 2005 discontinued after October 3rd.

Table 4.3.5 Relative abundance (mean number per hectare) of rainbow smelt at ages 0 to 3 caught with a 10-m bottom trawl in the offshore waters of Outer Long Point Bay, Lake Erie, during October 1984-2006.

Year	Effort (minutes)	AGE		
		0	1	2
1984	320	2206.3	15.1	8.1
1985	394	84.0	397.8	11.8
1986	300	3510.5	31.3	387.2
1987	360	316.8	3860.7	206.3
1988	400	761.4	26.5	80.5
1989	320	1418.3	767.2	2.8
1990	320	1454.4	308.1	138.4
1991	320	67.1	787.0	0.0
1992	320	1646.2	29.8	70.3
1993	320	233.6	1723.0	95.8
1994	320	391.2	4.4	1.3
1995	320	93.0	334.8	52.2
1996	240	353.2	16.4	1.6
1997	400	154.4	168.4	14.1
1998	400	422.5	9.9	13.7
1999	310	40.3	137.1	33.6
2000	400	259.9	21.7	7.0
2001	400	2633.3	663.0	29.0
2002	400	142.5	3.5	1.9
2003	400	7058.1	165.7	32.5
2004	400	132.2	495.8	61.5
2005	400	0.9	3.7	2.9
2006	400	1256.0	28.9	40.8
Avg. for 1984-2005		1062.7	453.2	56.9

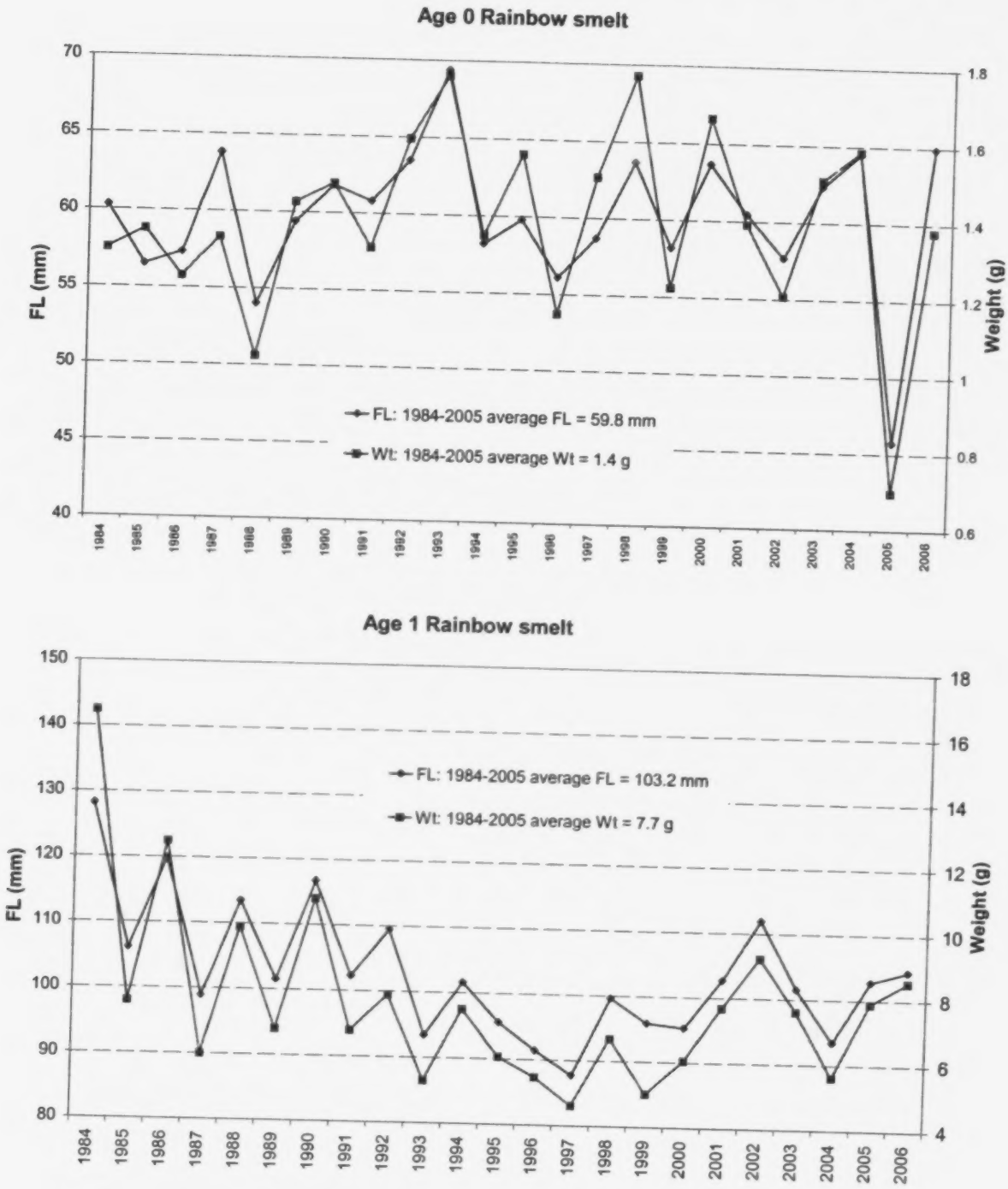
Age 0 Rainbow smelt
FL (mm)
Weight (g)
FL: 1984-2005 average FL = 59.8 mm
Wt: 1984-2005 average Wt = 1.4 g
Age 1 Rainbow smelt
FL (mm)
Weight (g)
FL: 1984-2005 average FL = 103.2 mm
Wt: 1984-2005 average Wt = 7.7 g

Figure 4.3.2 Mean fork length (mm) and weight (g) of Age 0 (top graph) and 1 (bottom graph) rainbow smelt from 10-m index trawl catches in the offshore waters of outer Long Point Bay, Lake Erie, 1984-2006 (October data).

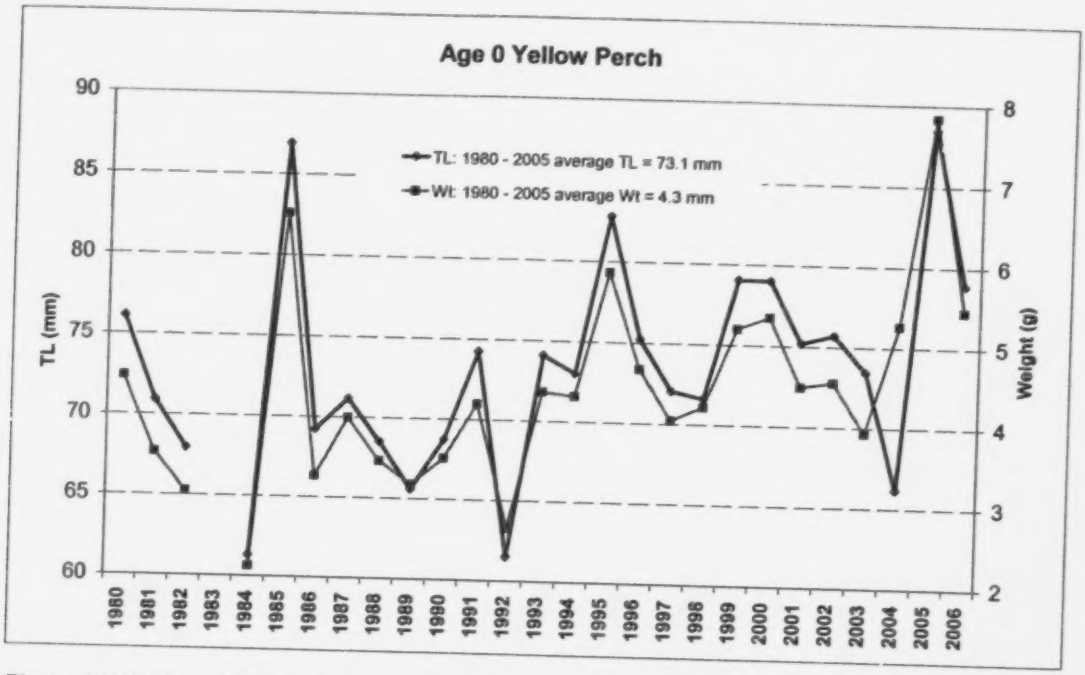

Figure 4.3.3 Mean total length (mm) and weight (g) of Age 0 yellow perch from 6.1-m index trawl catches in the inshore waters of Long Point Bay (Inner and Outer Bays combined), Lake Erie, 1980-2006 (Sept. - Oct. data). No fish sampled in 1983.

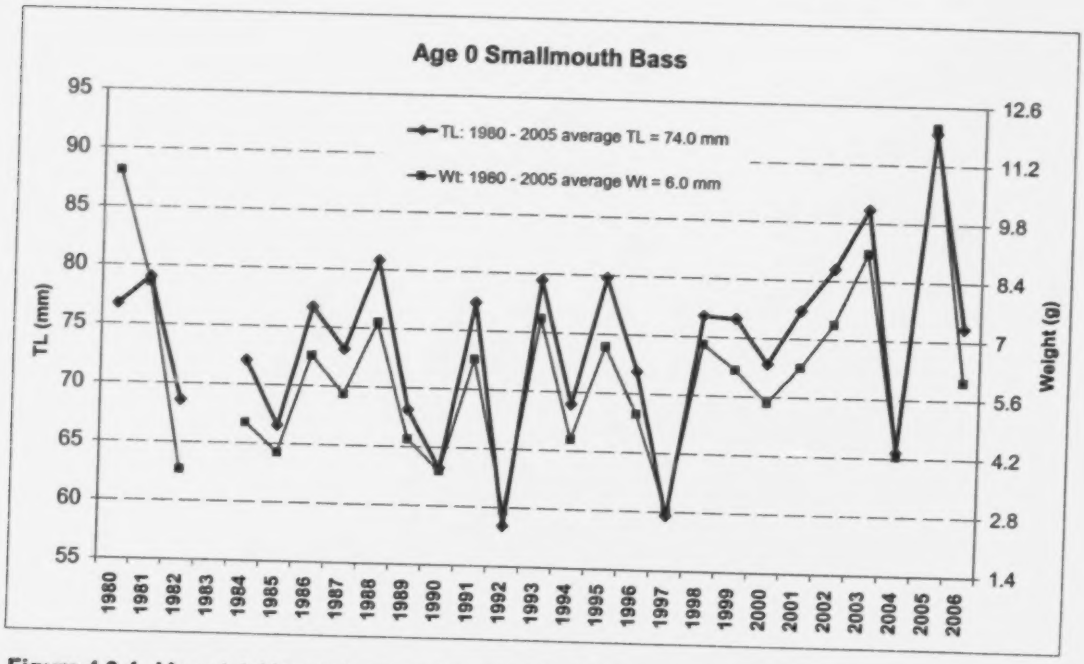

Figure 4.3.4 Mean total length (mm) and weight (g) of Age 0 smallmouth bass from 6.1-m index trawl catches in Inner Bay of Long Point Bay, Lake Erie, 1980-2006 (Sept. - Oct. data). No fish sampled in 1983.

4.4 Long Point Bay Nearshore Fish Community Survey

A gill net survey has been conducted annually in Long Point Bay since 1986 to monitor the composition of the fish community, and describe the abundance and biological characteristics of important sport and commercial species over time. Between 1991 and 1994, the program was expanded to include comparisons of the effectiveness of multifilament gear (used 1986-1994) and monofilament gear (used since 1991). The later gear type has been used in the commercial fishery and, more recently, in survey programs in Lake Erie. Comparisons of catches between mono and multi nets were completed in 1996, and species specific conversion ratios were computed. Species catches from multifilament nets (pre 1991) were adjusted to comparable efficiency of monofilament nets (by conversion ratio multipliers) to describe trends in abundance of major species across the entire time series (1986-2006). Monofilament nets have now been used exclusively in this survey since 1995.

Study Area and Sampling Design

The study area was comprised of the waters within outer Long Point Bay, extending from the minimum depth (12 ft.) that the gear could be set, to the depth of the 30-ft. contour. The bay was partitioned into three sampling areas, then further partitioned into sampling grids (0.5 X 0.5 nautical miles), and 2 depth strata (12-18 ft., 18-30 ft.). Areas 1, 2 and 4 have been sampled each year since 1986. The survey period was from spring to fall during 1986 to 1993. This was reduced to June-August for the years 1994 and later. Only data from a comparable time period (June-August) for the entire time series (1986-2006) are reported below.

Areas were sampled weekly on a rotational basis. Two grid locations (one from each depth stratum) were chosen randomly within each sampling area to establish netting sites. A monofilament net composed of single 50 foot panels of mesh sizes 1.25, 1.5 and 1.75" (stretched mesh) and 2 panels each of mesh sizes 2, 2.25, 2.5, 2.75, 3, 3.5, 4, 4.5, 5, 5.5 and 6" mesh, was set at each location. The total length of monofilament gang was 1250 ft. (381 m).

Catch by species from 1995 to 2006 are summarized in Table 4.4.1. Yellow perch and Alewife accounted for 84% of all fish species caught during the 2006 survey. Gizzard shad (4.5%), smallmouth bass (3.4%), rock bass (1.7%), freshwater drum (1.6%), longnose gar (1.3%) and round goby (1.3%) contributed the next highest numbers of fish species caught (Table 4.4.1).

Trends in Abundance, Biomass and Growth of Yellow Perch 1986-2006

Yellow perch were abundant in Long Point Bay during the late 80's (Figure 4.4.1). Population size decreased precipitously during the early 90's and remained at low levels throughout the decade until 2000, when two year old perch from the strong '98 year class began to recruit into the population. The '98 year class remained the dominant cohort of index gill net catches, contributing 88, 86, 70, and 41% of the annual survey total perch catch (in number) in successive years from 2000 to 2003. In 2006 the '98 year class as eight year old fish contributed 2% to the total perch catch. In 2002, the year of highest yellow perch abundance, the '98 year class accounted for 70 and 74% of the total perch catch in number and biomass, respectively. Numeric abundance of yellow perch decreased 36% in 2003 and thereafter has remained relatively constant (Figure 4.4.1). Numeric abundance of perch decreased slightly in 2006, but mean biomass increased 15% with recruitment and growth of the moderately strong 2001 and 2003 year classes.

Yellow perch mean size at age has increased over the survey time series (Figure 4.4.3). A decreasing trend in size at age is evident in age 4 and 5 perch after 2001 and in age 3 perch after 2003. Mean size of age 2 and 5 perch decreased slightly and age 2 and 4 perch increased in 2006 (Figure 4.4.3).

Trends in Abundance, Biomass and Growth of Smallmouth Bass 1986-2006

Catch rates of smallmouth bass in Long Point Bay index gill nets has ranged between 20 to 60 bass per km during most of the survey years between 1986 and 2003, indicating a relatively stable and healthy population during this time period (Figure 4.4.1). Relatively low smallmouth bass abundance in 1998 was followed by a period of yearly increases that peaked in 2003 at 47 bass/km. Numeric abundance and biomass of bass decreased sharply in 2004 and again in 2005. This brief trend reversed in 2006 with a 187% increase in mean numeric abundance and 164% increase in mean biomass (Figure 4.4.2).

Smallmouth bass size at ages 2 through 7 has increased since about the late 90's (Figure 4.4.4). These age classes of bass were above average size at age in 2006 (Figure 4.4.4).

Table 4.4.1 Total numbers of each fish species caught in monofilament nets during the Long Point Bay Index Gillnetting Survey, 1995-2006. Numbers are standardized to 36 sets for comparison.

Species	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Longnose Gar	59	26	116	5	177	24	3	0	0	24	27	130
Alewife	2780	4	2	1897	491	2661	14	8731	6	1	11	3571
Gizzard Shad	50	42	101	17	167	436	73	382	203	110	52	435
Pink Salmon	0	0	0	0	2	0	0	1	0	1	0	0
Rainbow Trout	1	1	2	3	1	0	0	0	5	0	0	2
Atlantic Salmon	1	0	0	0	0	0	0	0	0	0	0	0
Brown Trout	3	3	3	6	1	0	2	2	5	1	1	0
Lake Trout	0	1	0	1	0	0	0	0	0	2	1	2
Lake Whitefish	0	1	1	0	1	0	0	0	0	0	0	0
Rainbow Smelt	1	0	7	0	0	0	10	0	0	13	9	2
Northern Pike	3	1	7	5	37	6	5	6	17	9	1	2
Mooneye	1	0	0	0	0	0	0	0	0	0	0	0
Quillback	16	0	20	7	7	11	2	5	22	14	3	9
White Sucker	135	120	120	179	301	126	110	86	135	82	134	37
Northern Hog Sucker	0	0	0	0	0	0	0	0	0	0	1	0
Redhorse Sucker	88	36	23	46	55	37	56	19	32	20	24	12
Common Carp	9	1	0	9	3	6	9	5	10	7	0	11
Emerald Shiner	0	0	0	0	0	0	0	0	0	0	1	0
Spottail Shiner	0	0	0	0	0	0	2	1	0	1	1	1
Brown Bullhead	3	8	1	2	33	0	1	11	22	70	32	29
Channel Catfish	0	0	5	5	1	5	1	0	2	2	1	3
Stonecat	6	5	8	3	2	15	13	2	0	0	0	0
Burbot	1	23	9	20	17	29	5	1	0	0	0	0
Troutperch	0	0	0	0	0	0	0	0	0	1	0	0
White Perch	21	10	71	6	39	43	27	61	41	72	36	50
White Bass	18	4	32	3	21	13	2	11	37	9	4	42
Rock Bass	602	388	320	194	536	224	155	63	119	56	113	167
Pumpkinseed	75	12	47	125	55	5	14	2	6	3	7	8
Bluegill	10	0	2	4	1	0	1	0	0	0	0	0
Smallmouth Bass	798	460	666	263	377	434	456	383	631	161	116	334
Black Crappie	5	1	5	5	2	0	1	0	0	0	0	0
Yellow Perch	1253	784	939	903	1230	3603	5931	7731	4615	4960	4203	4582
Walleye	14	11	17	4	12	2	4	4	24	32	21	15
Round Goby	0	0	0	0	5	33	323	1143	174	185	61	125
Freshwater Drum	512	485	516	424	368	243	203	230	482	214	133	152
Actual Number of Sets	32	28	36	40	40	44	40	40	36	40	40	40

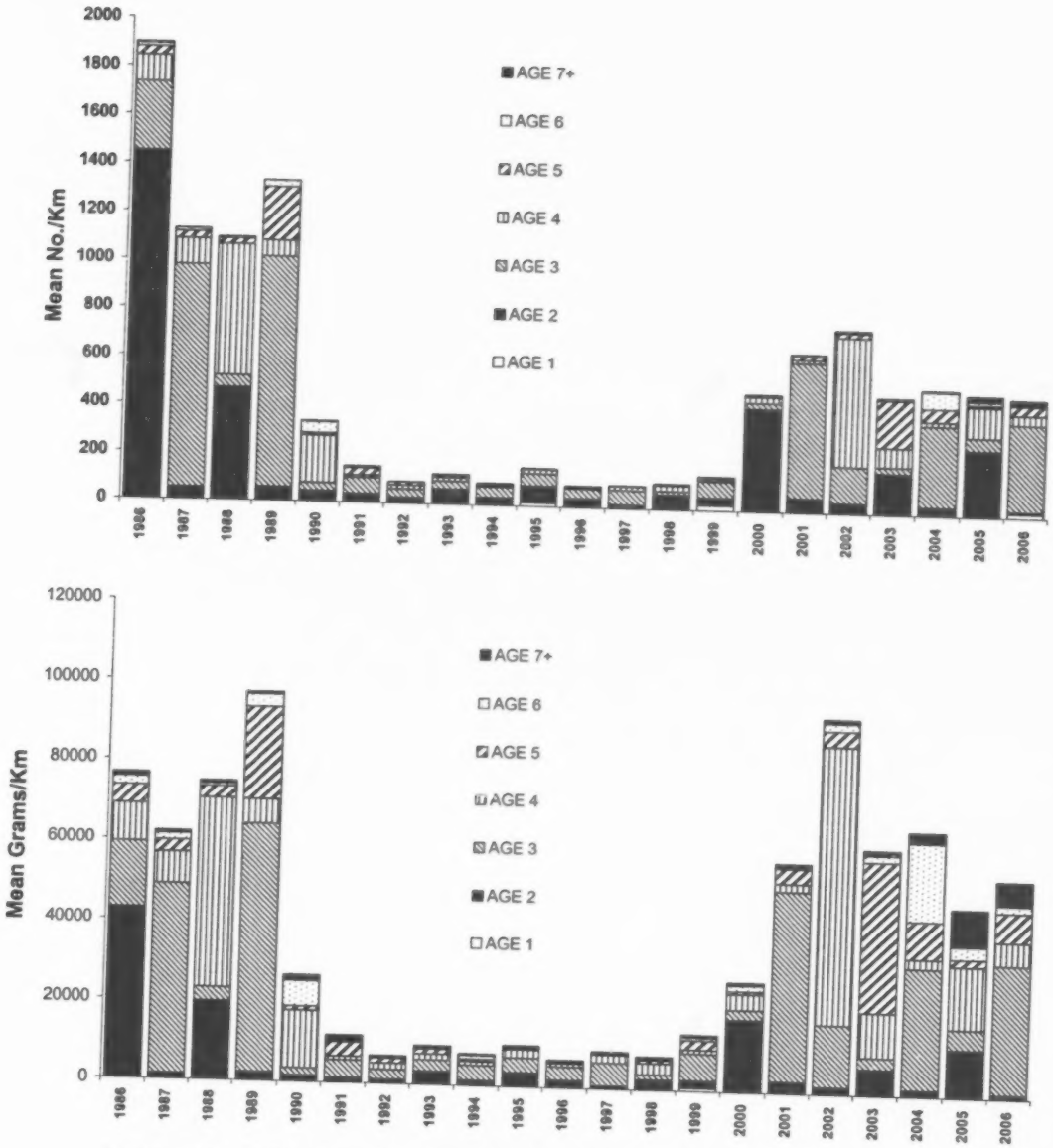

Figure 4.4.1 Catch at age of yellow perch in Long Point Bay Index Gill Nets set overnight at 18 - 30 ft depths during June - August, 1986-2006. Catch reported in Arithmetic Mean Number per Kilometer (top graph) and Arithmetic Mean Weight (g) per Kilometer (bottom graph). Age 7 and older perch combined.

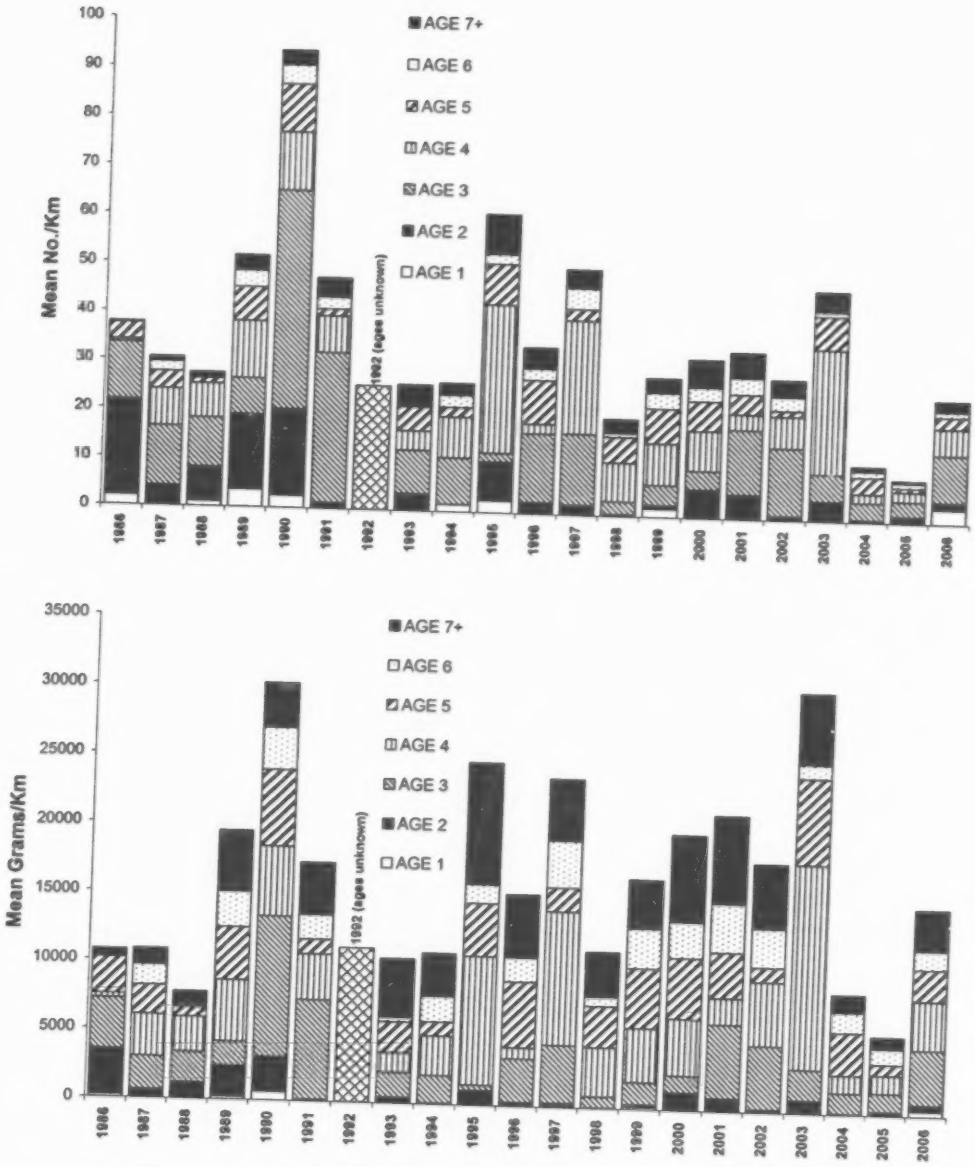

Figure 4.4.2 Catch at age of smallmouth bass in Long Point Bay Index Gill Nets set overnight at 18-30 ft depths during June - August, 1986-2006. Catch reported in Arithmetic Mean Number per Kilometer (top graph) and Arithmetic Mean Weight (g) per Kilometer (bottom graph). Age 7 and older bass combined.

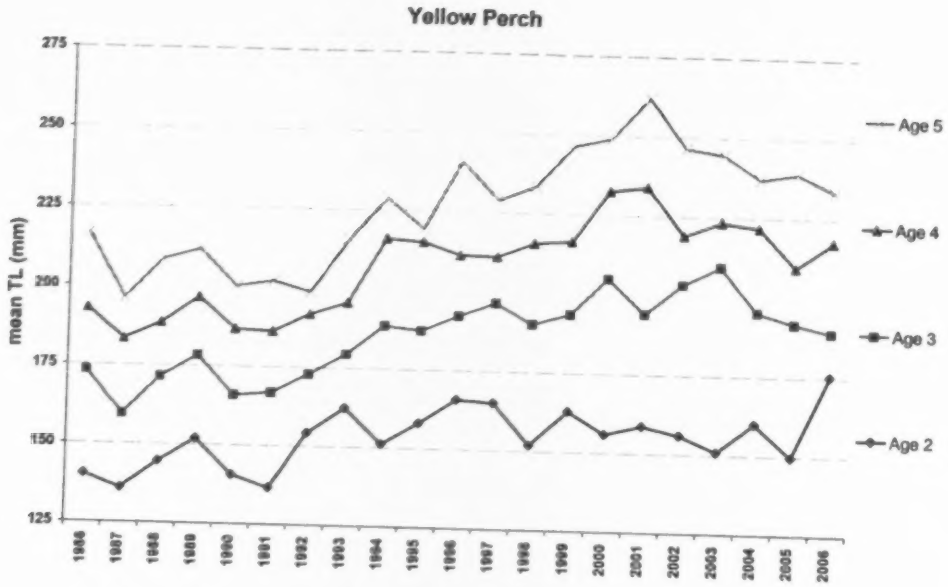

Figure 4.4.3 Yellow perch mean total length (mm) at ages 2 to 5 in Long Point Bay Index Gill Nets set overnight at 18-30 ft depths during June - August, 1986-2006. Males and females combined.

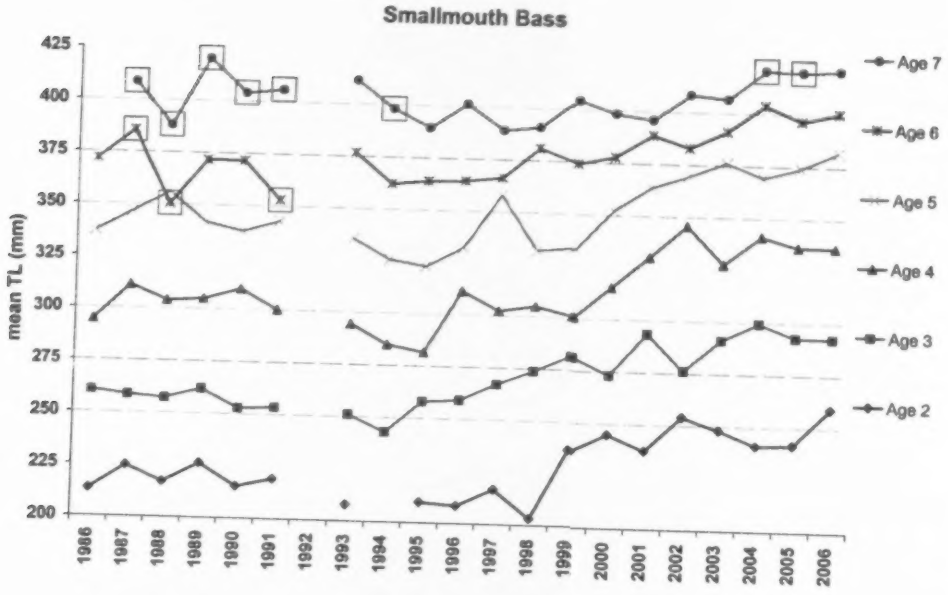

Figure 4.4.4 Smallmouth bass mean total length (mm) at ages 2 to 7 in Long Point Bay Index Gill Nets set overnight at 18-30 ft depths during June - August, 1986-2006. Males and females combined. Mean values outlined with a box were derived from N < 10 samples. Bass ages were not available for 1992 samples.

APPENDIX A

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